

BLCT - 1002 Intro to Construction Safety, 2.00 Credits

Level: Lower

This course explores the safety hazards associated with the construction trades. Part of this course will follow the training requirements set forth by the Occupational Safety & Health Administration (OSHA) Construction Safety Outreach Program, including OSHA's Focus Four Hazards, personal protective equipment, and health hazards in construction. During this course students may have the opportunity to obtain an OSHA 10 card for the construction industry. Students will develop an understanding of construction safety beyond basic OSHA 10 industry training.

BLCT - 1132 Estimating I, 2.00 Credits

Level: Lower

This course develops mathematical concepts and application skills necessary for the carpenter and mason to estimate building quantities and associated costs. Topics include arithmetic operations with whole numbers, decimals, and fractional numbers. Formulas for area, volume, board foot quantities, and basic geometry as it pertains to construction will be studied. The quantities estimated are in the framing/sheathing stages of enclosing a building including concrete, brick, and block calculations.

BLCT - 1202 Portable Tools & Fastening Sys, 2.00 Credits

Level: Lower

This course is a survey of hand and portable power tools, as well as fasteners, adhesives, and power fastening systems commonly used in the construction industry. Students will learn the proper terminology, usage, setup, maintenance, and safety associated with the subject matter. The course also includes the proper choice of tools, fasteners, and adhesives as well as critical thinking problems that challenge students' comprehension of subject matter.

BLCT - 1206 Building Construction Lab I, 6.00 Credits

Level: Lower

Applied Learning-Practicum

This course is a survey and application of practices used in residential and light commercial construction. Emphasis will be on basic principles and development of skills used in construction operations to safely perform layout, measurement, cutting, and installation processes. This hands-on applied learning lab will include masonry and framing work on real-world projects and authentic construction sites. Throughout the semester, students will be required to demonstrate learned competency through a series of proficiency assessments.

BLCT - 1212 Foundation Systems & Layout, 2.00 Credits

Level: Lower

This course is an overview of the first stages of building a structure. This course will cover the process of building layout along with concrete form building, concrete science, mixing and placement. Block wall construction and principles will also be introduced in this course.

BLCT - 1222 Construction Math, 2.00 Credits

Level: Lower

This course is an introduction to the math concepts and theories used specifically in the construction field. Geometric and basic math operations will be applied to scenarios commonly seen in the construction field. Fundamentals of print reading will be covered as these math concepts are employed.

BLCT - 1232 Framing I, 2.00 Credits

Level: Lower

This course is an introduction to various types of residential framing systems and introduces building codes relevant to these systems. The course includes terminology and identification of components involved with types of construction, floor and wall frames and green building products used with these systems. Students will learn basic print reading, proper layout, how to calculate material sizes, rough opening sizes and procedures for framing floor, wall and ceiling systems and power tool safety.

BLCT - 1242 Framing II, 2.00 Credits

Prerequisite(s): BLCT 1232 with D or better *

Level: Lower

This course is a continuation of concepts taught in BLCT 1232. The course will include backing, blocking, and furring, and metal stud framing. Roof framing concepts will be introduced. Students will study roof types and terminology with a concentration on common rafter layout and truss installation. Truss roof design, along with common fastening techniques and building codes relevant to the industry will be covered.

BLCT - 1302 Blueprint Reading & Grades I, 2.00 Credits

Level: Lower

This course is an introduction to different types of construction plans and how they represent finished grades of buildings. This course will present the parts of blueprints in detail including symbols, the title block, and grid lines. Students will be introduced to site plans and the concept of preparing graded surfaces using heavy equipment. Identification of construction stakes and interpretation of marks on each type of stake will be covered. The process for grading slopes will also be discussed.

BLCT - 1306 Heavy Equipment Lab I, 6.00 Credits

Level: Lower

Applied Learning-Practicum

This course is an introduction to the use of grade setting equipment and heavy equipment. Emphasis is placed on safety and development of job skills. This hands-on applied learning lab will include various heavy equipment operations, performing site layout, grade setting, and the use of labor skills utilized in the construction industry. Throughout the semester, students will be required to demonstrate learned competency through a series of proficiency assessments. The Equipment Practicum is divided into observation, seat time, maintenance and various support functions.

BLCT - 1312 Introduction to Earth Moving, 2.00 Credits

Level: Lower

This course provides a broad introduction to the processes of planning and executing earth moving activities on various types of construction projects. The uses of heavy equipment such as bulldozers, scrapers, excavators, and loaders will be covered.

BLCT - 1322 Preventive Maintenance Checks, 2.00 Credits

Level: Lower

This course introduces new operators to equipment systems and their preventive maintenance procedures. Emphasis is placed on developing daily maintenance routines based on manufacturer's guidelines. The course content explains the reason for daily checks in relation to equipment uptime and longevity.

BLCT - 1332 Operations Part I, 2.00 Credits

Level: Lower

This course covers the use and maintenance of the most commonly used machines on a construction site. The course emphasizes safe operation as well as basic operating techniques for each machine. This will include safe setup of machines as well as excavating foundations, septic systems, driveways, etc.

BLCT - 2202 Insulation and Drywall, 2.00 Credits

Level: Lower

This course is an introduction to thermal and acoustical insulation, condensation and required ventilation in residential building. This course also includes drywall products and installation of drywall and concealing fasteners and joints (finishing) drywall. Students learn of various tools and fasteners related to the industry.

BLCT - 2206 Building Construction Lab II, 6.00 Credits

Prerequisite(s): BLCT 1206 with D or better

Level: Lower

Applied Learning-Practicum, Course Fee \$93.00

This hands-on applied learning lab is a continuation of skills learned in BLCT 1206. It will include the application of practices used in residential and light commercial construction and wood fabrication. Students will learn to safely set up and operate stationary power tools, as well as construction equipment commonly used on the jobsite. Students will develop the ability to interpret construction drawings and assemble projects based on shop drawings and models. There will be continued advancement in the application of residential and light commercial building practices. This course will have an emphasis on interior and exterior wall systems. Subject matter will include masonry, residential wall systems, and shop fabrication. Much of the lab will be conducted on genuine construction job sites. Throughout the semester, students will be required to demonstrate learned competency through a series of proficiency assessments.

BLCT - 2212 Exterior Building Envelope, 2.00 Credits

Level: Lower

This course provides the student with basic knowledge of windows, doors, and weather resistant barriers in residential construction. Subject matter will include applicable terminology, comparisons, and installation methods. Attention will be given to proper flashing techniques, code requirements, and associated condensation issues inside conventional wall systems. A survey of developing technologies in wall systems will also be conducted.

BLCT - 2232 Siding and Cornices, 2.00 Credits

Level: Lower

This course provides the student with basic knowledge of siding and cornice systems in residential construction. Subject matter will include applicable terminology, comparisons of various siding and cornice systems, and installation methods. Emerging technologies in exterior cladding systems will also be covered.

BLCT - 2242 Wood Products & Fabrication, 2.00 Credits

Level: Lower

This course examine the processing of lumber, (including the working parts of a tree, hardwoods vs. softwoods, different methods of sawing and drying to produce useful building products, etc.), the manufacture of wood panel products (structural and nonstructural), and engineered wood products. Students will learn how these products are used in the building trades and the installation requirements unique to these engineered wood products. Students will also be trained in the proper setup and safe use of stationary power tools.

BLCT - 2252 Intro to Print Reading & Estim, 2.00 Credits

Prerequisite(s): BLCT 1222 with D or better

Level: Lower

This course covers basic construction communication through residential print reading. Students will learn how to perform material takeoffs and apply costs based on construction drawings. The course will also cover common scales, symbols, line types, and abbreviations used in construction drawings. Basic construction drafting principles will be introduced. The course will familiarize students with the purpose of building codes and zoning laws and how they are demonstrated in a set of working drawings for a house.

BLCT - 2262 Masonry, 2.00 Credits

Prerequisite(s): BLCT 1212 with D or better

Level: Lower

This course reviews, reinforces, and builds on trade aspects and skills introduced in BLCT 1212. The class will cover the evolution of the masonry trades, its tools and materials. Bricklaying and stone veneers, the basics of plasterwork, and LEED and Green concepts will be introduced in this course as they pertain to masonry. The concepts and practices that make masonry a safe building material will also be covered.

BLCT - 2302 Work Zone Safety, 2.00 Credits

Prerequisite(s): BLCT 1002

Level: Lower

This course presents topics for safety on the construction site. A broad range of work zones involving heavy equipment will be covered. Emphasis is given to residential, commercial and highway construction. This course covers occupational safety and health standards and The Manual for Uniform Traffic Control Devices.

BLCT - 2306 Heavy Equipment Lab II, 6.00 Credits

Prerequisite(s): BLCT 1306 with D or better

Level: Lower

Applied Learning-Practicum

This course continues the use of grade setting equipment and heavy equipment. Emphasis is placed on work site safety and development of job skills. This hands-on applied learning lab will include various heavy equipment operations, performing site layout, grade settings, and the use of labor skills utilized in the construction industry. Throughout the semester, students will be required to demonstrate learned competency through a series of proficiency assessments.

BLCT - 2312 Blueprint Reading & Grades II, 2.00 Credits

Prerequisite(s): BLCT 1302 with D or better

Level: Lower

This course presents proper practices for setting grades off benchmarks and describes methods of setting grades using various types of levels. The student will be taught how to read and interpret construction plans to determine grading requirements. Students will review basic grading operations, site prep, New York State Code rule 753, contours, establishing grades, reading and understanding site plans.

BLCT - 2322 Equipment Preventative Maintnc, 2.00 Credits

Level: Lower

This course covers preventative maintenance responsibilities including specifying basic equipment subsystems and major mechanical systems; knowing how and when to service equipment; and how and when to complete routine inspections of equipment.

BLCT - 2332 Operations - Part II, 2.00 Credits

Prerequisite(s): BLCT 1332 with D or better

Level: Lower

This course continues the study of tractors, dump trucks, and front-end loaders. Safe operation practices as well as preventive maintenance requirements will be covered for each piece of equipment. Common uses of each piece of equipment and their attachments will also be discussed.

BLCT - 2342 Soils, 2.00 Credits

Level: Lower

This course describes basic soil classification methods, details factors affecting classification, and presents soil density and compaction requirements for highway and building construction.

BLCT - 2352 Compaction & Stabilization, 2.00 Credits

Level: Lower

This course presents the use, safe operation, and specialized maintenance of compaction equipment to include pneumatic tire compactor, steel-wheel compactor, vibratory compactor and sheepfoot compactor. The use of compaction and stabilization equipment for leveling and compacting soils, compacting cement and asphalt will be explained and demonstrated. A discussion of soil stabilization methods and erosion control methods will be included.

BLCT - 3302 Blueprint Reading & Grades III, 2.00 Credits

Prerequisite(s): BLCT 2312 with D or better

Level: Lower

This course covers the equipment and supplies required to perform structural work. Discussions include the following topics: bridge types and materials, bridge substructures, bridge superstructures, structural concrete and structural steel. Reading and interpreting site plans will also be reinforced.

BLCT - 3306 Heavy Equipment Lab III, 6.00 Credits

Prerequisite(s): BLCT 2306 with D or better

Level: Lower

Applied Learning-Practicum

This course builds on the content of HEO lab part II. Additional highway and bridge construction techniques, as well as advanced pieces of heavy equipment will be introduced. Labs will include practice with record keeping, estimation and project management.

BLCT - 3312 Introduction to Grading, 2.00 Credits

Level: Lower

This course contains information using various grading instruments and tools. A laser level, engineer's level, and GPS are used to establish grades for surface and sub-surface construction sites. Students will place and correctly mark appropriate grades stakes used at industry standard work sites.

BLCT - 3322 Advanced Operations, 2.00 Credits

Prerequisite(s): BLCT 2332 with D or better

Level: Lower

This course presents the use, safe operation, and maintenance of excavators, trucks, and trailers. The course content will explain and demonstrate the use of excavators in ditching, grading, and slope-finishing operations, describing various operating techniques, and describes the types of trucks used in highway/heavy construction; these include rigid frame trucks, such as dump trucks, transit-mix trucks, and tractor-trailer trucks. The trailers discussed include bulk haulers and flatbed trailers. Truck controls and components, preventive maintenance and operation, and required licensing regulations are also covered. This course will continue to reinforce the operation of backhoes, bulldozers, and front-end loaders.

BLCT - 3332 Highway Surfaces, 2.00 Credits

Level: Lower

This course includes the processing, preparation and application of asphalt and concrete to a highway surface. Also covered is the operation of asphalt pavers and all equipment required to perform paving and concrete applications.

BLCT - 3342 Construction Proj Supervision, 2.00 Credits

Level: Lower

This course will discuss the principles of project planning, scheduling, estimating, and management. The student will practice different roles and skills required for supervising personnel. Students will be required to understand and utilize computer-based applications during the course.

BLCT - 3352 Tracked Finishing & Grading, 2.00 Credits

Level: Lower

This course includes the use of tracked equipment used in the process of finishing and grading of a construction site. Types of equipment available, proper selection and operating techniques will be discussed.

BLCT - 3413 Blueprint Reading-Bldg Construct, 3.00 Credits

Corequisite(s):

Level: Lower

This course covers instruction in blueprint reading, concentrating on plumbing blueprints, building blueprints, and instruction in the use of the architect's scale for taking measurements. The course covers all components of a wood frame structure including foundations. Students will be taught the proper installation of piping and fixtures so as not to jeopardize the building's structural integrity.

BLCT - 3423 Pipe Fitting - Math Estimating, 3.00 Credits

Corequisite(s):

Level: Lower

This course covers basic math and materials estimating the plumbing trades. Pipe fitting math is practiced and applied to ensure proper plumbing drainage, as well as water and gas line pipe length installations. Material lists and job estimating is also taught as it pertains to various plumbing systems and fixtures. The students are given instruction on materials mark up for profit, proper customer billing, and required income and sales tax as it pertains to a self-run plumbing business.

BLCT - 3433 Cop Pipe & Tub, Water Sys Des, 3.00 Credits

Corequisite(s):

Level: Lower

This course covers the study and installation of various types of copper pipe and tubing and proper methods of joining. Also includes instruction on fitting use and proper code applications. The methods of testing potable water lines are also covered.

BLCT - 3443 Drainage Systems & Piping, 3.00 Credits

Corequisite(s):

Level: Lower

Applied Learning-Practicum

This course covers the instruction in the design, joining, installation, and proper application of various types of drainage piping used in drainage and venting systems. Also covered will be instruction and study of public and private sewage systems, their make-up, various aspects of troubleshooting and maintenance.

BLCT - 3453 Plumb Trade History & Safety, 3.00 Credits

Level: Lower

This course covers the study of safety practices and OSHA training related to the plumbing trades. All students obtain a 10-hour OSHA training card upon successful completion of the course. The history of plumbing and how plumbing systems and codes originated is covered. This course also covers the instruction in the proper care, use, and application of various hand and power tools used in the plumbing trade.

BLCT - 3463 Watr Heaters-Plumb Fix Inst/Rpr, 3.00 Credits

Corequisite(s):

Level: Lower

This course covers the instruction and study of selection and installation of water heaters for industry standards. Instruction is also given on gas and electric water heater troubleshooting and repairs. This course also covers the instruction of plumbing fixture specifications and installation. Fixture troubleshooting and repair is also covered in this course.

BLCT - 3473 Heating Fuels-Comb Theo&Troubl, 3.00 Credits

Prerequisite(s): BLCT 3453 with D or better

Level: Lower

This course is an introduction to the various fuels used in the heating trades and the methods of converting fuels for various applications. The theory of combustion and combustion troubleshooting is also covered in the course. Common forced air furnace parts and components are discussed and various manufactured retrofit products are applied. This course also includes basic wiring of conventional forced air furnaces and principles and troubleshooting of furnace electronic ignition.

BLCT - 3483 Electrical Fundamentals, 3.00 Credits

Prerequisite(s): BLCT 3453 with D or better *

Level: Lower

The objective of this course is to develop knowledge of electricity and the units used to describe and measure it. The course will also show how different types of electrical circuits function and what different electrical components do in those circuits. Special emphasis is placed on temperature controls and switching. Elementary wiring diagrams are introduced.

BLCT - 3493 Forced Air Furnace Controls, 3.00 Credits

Prerequisite(s): BLCT 3453 with D or better

Level: Lower

The objective of this course is to develop skills in the installation and service of electrical components of gas and oil forced air furnaces. This includes gas standing pilot and electronic ignition systems. It applies to both 80% and 90% efficient furnaces including those with integrated circuit boards.

BLCT - 3503 Hydro Comp, Circu Pump&Ht Emit, 3.00 Credits

Prerequisite(s): BLCT 3453 with D or better

Level: Lower

Applied Learning-Practicum

The purpose of the course is to develop an understanding of piping materials, fittings and various components used in hydronic heating systems. This includes knowledge about types and performance of circulating pumps. Also included are heat emitters which have been used in the past and several new types which are currently gaining popularity.

BLCT - 3513 Hydronic Controls and Motors, 3.00 Credits

Prerequisite(s): BLCT 3453 with D or better

Level: Lower

This course covers electrical components as they apply to hydronic heating. Students will produce wiring diagrams for external boiler wiring as it applies to zone valves and pumps. Investigation into areas of multiple boiler controls, injection mixing controls and outdoor reset controls are pursued. The theory and application of different motors used in the HVAC industry are also presented.

BLCT - 3523 Hydronic Funda & Heat Sources, 3.00 Credits

Prerequisite(s): BLCT 3453 with D or better

Level: Lower

This course will introduce students to basic thermodynamic principles. The course will explore the advantages of hot water and steam heating, as well as the various types of boilers used in the industry.

BLCT - 3533 Hydronic Piping Systems, 3.00 Credits

Prerequisite(s): BLCT 3453 with D or better

Level: Lower

The objective of this course is to develop an understanding of various piping systems used in hydronic heating systems including series loop, one pipe two pipe (direct and reverse return) and primary/secondary piping. The course will also cover the applications and installations available for a variety of radiant heating types.

BLCT - 3602 Residential Remodel, 2.00 Credits

Level: Lower

This course covers the evaluation of overall conditions found in existing buildings. Students will learn about the construction techniques used in remodeling and how they differ from new construction. This will include the process of identifying and handling hazardous materials, historical framing styles, and replication of existing interior and exterior trim.

BLCT - 3606 Building Construction Lab III, 6.00 Credits

Prerequisite(s): BLCT 2206 with D or better

Level: Lower

Applied Learning-Practicum

This hands-on applied learning lab is a continuation of skills learned in BLCT 2206. Specific subject matter will include advanced framing principles, interior and exterior details, and roofing systems. Students will participate in a remodeling project where they will use critical thinking skills to apply understanding that was developed in previous courses. There will be continued advancement in construction estimating and print reading, and work with computer aided drafting and design. Much of the lab will be conducted on genuine construction job sites. Throughout the semester, students will be required to demonstrate learned competency through a series of proficiency assessments.

BLCT - 3612 Roofing Systems, 2.00 Credits

Level: Lower

This course will cover the theory and application of different roofing materials and techniques for residential and commercial construction. Emphasis is placed on basic principles of step flashing and water proofing for all types of roofing systems.

BLCT - 3622 Advanced Print-reading & Estim, 2.00 Credits

Prerequisite(s): BLCT 2252 with D or better

Level: Lower

This course gives specific information on the contractor's role in preparing quantity take-off estimates for final bid offerings. The course will build from the foundational information given in Introduction to Print Reading and Estimation (BLCT 2252). Students will learn the full extent of all contract documents, with an emphasis on drawing and reading blueprints, understanding building codes, identifying symbols, and gaining a full understanding of the specifications for a given project.

BLCT - 3632 Exterior Construction Details, 2.00 Credits

Level: Lower

This course covers the methods used in the construction and installation of residential exterior elements. The course content includes the construction of porches, decks, patios, and breezeways. Students will learn about exterior elements such as flooring/decking materials, different types of entrance doors and their installation, garage doors, pier footings, metal fastening systems, railing systems and structural supports, as well as building code requirements for these systems.

BLCT - 3642 Interior Trims, 2.00 Credits

Level: Lower

This course is a survey of the skills necessary to perform quality installation and fabrication of interior trim, doors, windows, and stair components. Course work also includes the design, fabrication, and installation practices of closet shelving.

BLCT - 3652 Advanced Framing, 2.00 Credits

Prerequisite(s): BLCT 1242 with D or better

Level: Lower

This course will cover the theory and application of framing techniques in residential and light commercial construction. Emphasis will be placed on basic principles used in hip and valley roof layout and fabrication. This course will also cover various stairway configurations and their calculations and layout.

BLCT - 3702 Residential Foundations, 2.00 Credits

Prerequisite(s): BLCT 2262 with D or better

Level: Lower

This course further develops concepts introduced in BLCT 2262. The student will be presented with advanced techniques to construct residential foundations using CMU (concrete masonry unit) construction. Reinforced footings, walls, porches and stoops, and foundation drainage are presented in this course.

BLCT - 3706 Masonry Construction Lab III, 6.00 Credits

Prerequisite(s): BLCT 2206 with D or better

Level: Lower

Applied Learning-Practicum

This course covers the survey and application of practices and skills used in residential and light commercial masonry and concrete construction. Emphasis is on basic principles and development of skills used in construction operations to safely perform layout, measurement, cutting, and installation processes. This hands-on applied learning lab will include the masonry elements of brick, CMU, stone, pavers and concrete flatwork as related to masonry construction. The lab experience will include the proper and safe erection of scaffolding. Throughout the semester students will be required to demonstrate learned competency through a series of proficiency assessments.

BLCT - 3712 Building Stone, 2.00 Credits

Prerequisite(s): BLCT 2262 with D or better

Level: Lower

This course presents to the student the proper knowledge, techniques, and tool and equipment use to construct stonewall, facades and building elements of natural and cast stone.

BLCT - 3722 Fireplace & Hearth Oven Design, 2.00 Credits

Prerequisite(s): BLCT 2262 with D or better

Level: Lower

This course presents the proper knowledge and techniques to construct site-built fireplaces and hearth ovens. The course will also cover the installation of various refractory products.

BLCT - 3732 Masonry Restoration, 2.00 Credits

Prerequisite(s): BLCT 2262 with D or better

Level: Lower

This course covers the knowledge and techniques to analyze, prepare and restore deteriorated or damaged masonry. Cleaning, caulking and tuck-pointing are included in this course.

BLCT - 3742 Sustainability w/Masonry Const, 2.00 Credits

Prerequisite(s): BLCT 2262 with D or better

Level: Lower

This course presents to the student the proper knowledge to install sustainable masonry paving and wall systems. Sustainable masonry products can contribute to a longer life cycle of a building, as well as the safe occupancy and use of a building. Run-off reducing permeable paving systems are included in this course.

BLCT - 3752 All Weather Masonry, 2.00 Credits

Prerequisite(s): BLCT 2262 with D or better

Level: Lower

This course covers the proper knowledge, planning, mobilization and techniques to construct masonry in cold/freezing weather and the extremes of hot weather.

BLCT - 4002 Below Grade Construction, 2.00 Credits

Level: Lower

This course discusses the below grade construction processes that are necessary to perform highway/heavy construction. Excavation support systems, excavation safety, underground piping materials and fittings, joining methods for underground pipe, box culverts, and catch basins are covered.

BLCT - 4143 Basic House Wiring-Forced Air, 3.00 Credits

Prerequisite(s): BLCT 3453 with D or better

Level: Lower

Course Fee \$13.00

This course offers instruction and application of basic house wiring and theory. The student is also introduced to the heating trade and to the theory of proper furnace installation. Reasons for human comfort and discomfort as it pertains to forced air heat are discussed. Troubleshooting of disturbing and distressing noises and conditions as well as indoor air quality is also covered in this course.

BLCT - 4153 Sheet Metal Fabrication, 3.00 Credits

Prerequisite(s): BLCT 3453 with D or better

Level: Lower

Course Fee \$24.00

This course covers the instruction and the application of various materials of the sheet metal trade. Students are also instructed in the forming and use of different seams and edges required for various applications. Instruction and proper application of methods of joining sheet metal such as riveting, welding, brazing, and soldering is also covered.

BLCT - 4163 Mid & Hi Effy Furn-Alt Warm Ar, 3.00 Credits

Prerequisite(s): BLCT 3453 with D or better

Level: Lower

This course covers the proper evaluation and installation of mid and high efficiency furnaces. Fuel oil burner breakdown, maintenance, and installations are covered in this course. Instruction is given on the proper sizing and installation of natural gas and propane gas distribution pipelines. Alternate warm air heat sources, types, and installations are also taught. Proper trade practices of the HVAC technician, heat system analysis, and maintenance are also covered in this course.

BLCT - 4173 Sheet Mtl Air Dist System & Vent, 3.00 Credits

Prerequisite(s): BLCT 3453 with D or better

Level: Lower

This course covers the many types of furnace ductwork and proper application of various duct fittings. Proper application and installation of furnace air distribution systems is also covered. Instruction on Type B galvanized sheet metal vent pipe and components is given and the proper sizing and installation of this metal piping is covered. Sheet metal math such as perimeter, area, and volume is also included in this course.

BLCT - 4183 Sheet Metal Trade Safety, 3.00 Credits

Prerequisite(s): BLCT 3453 with D or better

Level: Lower

This course covers instruction in the proper use and application of various hand and power tools used in the sheet metal trade. Sheet metal trade and tool safety is also covered in this unit. Students will be introduced to different sheet metal types and their proper applications as well as mechanical drawing. Students will develop and lay out patterns for sheet metal to be cut and formed.

BLCT - 4203 Air Cond Components & Install, 3.00 Credits

Level: Lower

Students will learn about air conditioning components and accessories. Students will learn how to install air conditioning including pressure testing, evacuation, and charging.

BLCT - 4213 Air Conditioning Fundamentals, 3.00 Credits

Level: Lower

This course teaches the fundamentals of air conditioning and how the components of the system work together to perform the cooling process. This includes an examination of types of systems, and detailed look at the types and performance of evaporators and compressors.

BLCT - 4223 Air Cond Perf & Trou & Ht Pump, 3.00 Credits

Level: Lower

This course teaches electrical and mechanical troubleshooting capabilities that are usable in real life applications. Students will also study heat pumps and a variety of applications in which they are feasible.

BLCT - 4233 Heat Loss & Heat Gain, 3.00 Credits

Prerequisite(s): BLCT 3523 with D or better

Level: Lower

Students will determine the heat loss and heat gain in a residential or small commercial building, which would allow a technician to determine what size equipment and to select and size heating and cooling ductwork and diffusers.

BLCT - 4243 Refrigeration Handling Cert, 3.00 Credits

Level: Lower

This course prepares students to take the EPA Refrigerant Handling Certification test.

BLCT - 4253 Residential Duct System Design, 3.00 Credits

Prerequisite(s): BLCT 4233 with D or better *

Level: Lower

Students will learn the fundamentals of duct system design as it applies to residential forced air heating and cooling systems. This includes an in-depth look at blower performance and equipment which affects airflow in ductwork.

BLCT - 4302 Basic CAD-Residential Drawing, 2.00 Credits

Prerequisite(s): BLCT 3622 with D or better

Level: Lower

This is a computer-based course of instruction that provides the student with training on basic computer aided drafting (CAD) techniques. This course utilizes AutoCAD, incorporating the application of projects and the AutoCAD commands that allow the student to learn at their own pace. There will be an emphasis on developing preliminary CAD residential blueprints.

BLCT - 4303 Interior Surfaces, 3.00 Credits

Prerequisite(s): BLCT 3323 with D or better

Level: Lower

This course covers the installation of finished ceiling, floor, and wall materials as well as the principles of stair building. The student will install floor and wall materials as well as calculate, cut and assemble stair parts in the laboratory.

BLCT - 4306 Building Construction Lab IV, 6.00 Credits

Prerequisite(s): BLCT 3606 with D or better

Level: Lower

Applied Learning-Practicum

This hands-on applied learning lab is a continuation of skills learned in Building Construction Lab III. Subject matter expands on an understanding of construction systems within the carpentry discipline and links other aspects of the construction industry to better prepare students for the job market. Students will produce a finish-quality cabinet, develop skills in the installation of interior finishes, and learn about mechanical systems to include electrical and plumbing. Students will also explore career paths in the construction industry which may include commercial construction, green building, small business ownership, and more. Much of the lab will be conducted on genuine construction job sites. Throughout the semester, students will be required to demonstrate learned competency through a series of proficiency assessments.

BLCT - 4332 Green Building & Bldg Science, 2.00 Credits

Level: Lower

This course is a study in the concepts of green building and building sciences, which includes alternative building techniques designed to allow building practices that result in energy efficient, healthier and economically sustainable buildings. Students will learn about alternative sources of heating and cooling, electricity, water efficiency and alternative building materials. Students will employ critical thinking skills in the study of building science and learn the concepts behind moisture and thermal control and building envelope systems. Course content also includes study of energy efficiency rating systems such as LEED (Leadership in Energy and Environment Design) and its impact on the current construction industry.

BLCT - 4342 Mechanical Systems, 2.00 Credits

Level: Lower

This course is an overview of plumbing, HVAC, and electrical installation to develop jobsite coordination and cooperation among various trades working at a construction site. Students will develop an understanding necessary to perform fundamental tasks with regard to electrical and plumbing.

BLCT - 4352 Interior Finishes, 2.00 Credits

Level: Lower

This course is the study of interior finishes used in the building trades. Students will learn terminology and techniques and employ critical thinking skills in the study of wall and ceiling finishes, ceramic tile, wood flooring and resilient tile. Study also includes finish cabinet installation as well as countertop installation, including plastic laminate, solid surface and granite tops. Safe handling of materials, tools and equipment will be included in this course of study.

BLCT - 4362 Cabinetry, 2.00 Credits

Level: Lower

This course introduces students to cabinet construction. Course content includes cabinet designs, components needed for fabrication, kitchen layouts, and cabinet installation. This course also explores a variety of countertops and how they are manufactured and installed.

BLCT - 4372 Timber Framing, 2.00 Credits

Level: Lower

This course will focus on the progression of timber framing traditions and practices from the Far East, Europe, and America. We will begin with an in-depth look at the centuries-old techniques employed in timber framing, and then follow the progression through braced-frame and balloon frame buildings. Layout procedures covered and employed include scribe rule, centerline, and square rule. Specific engineering principles and appropriate joint design will be thoroughly covered.

BLCT - 4402 Wheeled Finishing & Grading, 2.00 Credits

Level: Lower

In this course students will learn how motor grader controls work and function at industry standards as well as the various types of controls for motor graders. Students will learn about wheeled dozers and their effects as well as various controls and types. Students will learn about wheeled excavators and how they are used in grading.

BLCT - 4406 Heavy Equipment Lab IV, 6.00 Credits

Prerequisite(s): BLCT 3306 with D or better

Level: Lower

Applied Learning-Practicum, Course Fee \$136.00

This applied learning lab builds off skills acquired in HEO Lab pt. III. Students will gain understanding of underground excavation while maintaining proper grade from a pipe laser. Students will also use dual sloping lasers to industry standards. Students will setup and utilize GPS systems while safely operating a motor grader. Job management and completion of day-to-day operations on a construction site while following all safety standards in an organized manor will also be included.

BLCT - 4412 Finish Processes, 2.00 Credits

Level: Lower

In this course, students will learn about the work site finish processes for sub-surface and surface finishing methods and techniques. Also covered in this course: sub-surface/surface piping and drainage systems, materials used, equipment used and interpretation of production requirements/specifications.

BLCT - 4422 Project Management & Support, 2.00 Credits

Level: Lower

This course will build on the concepts from Construction Project Supervision. Students will use Gantt charts, spreadsheets and project management tools to track project costs and completion dates. Computer based technology will be utilized during the course. Leadership techniques will also be discussed.

BLCT - 4432 Advanced Safety, 2.00 Credits

Level: Lower

This course teaches advanced safety techniques and requirements for heavy equipment operators. Emphasis is placed on organizing and conducting safety meetings. OSHA hazardous material requirements and safe operation of equipment will be discussed. Safety reporting, inspections, and investigations will also be covered.

BLCT - 4442 Machine Control Technology, 2.00 Credits

Level: Lower

This course discusses advanced grading techniques utilizing both indicate and machine control technology. The use of the dual slope laser in conjunction with machine-mounted receivers will be reinforced. The course also describes the available technology and discusses its use in the field.

BLCT - 4482 Construction Entrepreneur, 2.00 Credits

Level: Lower

This course will explore entrepreneurial opportunities available in the construction industry. The course will include an overview of the basic requirements of ownership of a small business. Particulars for financing, law, regulation, permitting, insurance, and employee payroll will be discussed. In addition, students will study the relationships between general contractors, vendors, and sub-contractors.

BLCT - 4492 Commercial Construction, 2.00 Credits

Level: Lower

This course is a study of the methods used in commercial construction. Course study includes commercial print reading, foundations, structural practices, exterior and interior finishes, and roofing systems. Students will study different employment and career opportunities associated with the commercial construction industry. Students will engage critical thinking skills in the study of safety issues and how to correct them in relation to commercial construction.

BLCT - 4502 ACI Concrete Testing, 2.00 Credits

Prerequisite(s): BLCT 3706 with D or better

Level: Lower

This course presents the student with the proper knowledge and techniques to perform American Concrete Institute (ACI) quality control field tests on freshly mixed concrete and masonry grout. Upon completion, the student may elect to take the ACI field technician exam provided by a qualified ACI examiner.

BLCT - 4506 Masonry Construction Lab IV, 6.00 Credits

Prerequisite(s): BLCT 3706 with D or better

Level: Lower

Applied Learning-Practicum

This course builds upon the skills learned in BLCT 3706 - Masonry Construction Lab III. Emphasis will be placed on advanced principles and further development of skills used in masonry construction operations to safely perform layout, measurement, cutting, and installation processes. This hands-on applied learning lab will include masonry and forming work on real-world projects and authentic construction sites. Throughout the semester, students will be required to demonstrate learned competency through a series of proficiency assessments.

BLCT - 4512 Masonry Stairs & Ramps, 2.00 Credits

Prerequisite(s): BLCT 3706 with D or better

Level: Lower

This course presents the student with the proper knowledge and techniques to build masonry and concrete stairs and ramps that comply with the applicable building codes.

BLCT - 4522 Hardscaping with Masonry, 2.00 Credits

Prerequisite(s): BLCT 3706 with D or better

Level: Lower

This course presents the student with the proper knowledge and techniques to build outdoor masonry patios, walks, low-rise retaining walls, and outdoor kitchens with segmental retaining wall blocks, concrete and brick pavers and natural stone.

BLCT - 4532 Print Reading for Masonry, 2.00 Credits

Prerequisite(s): BLCT 3706 with D or better

Level: Lower

This course presents the student with the proper knowledge and techniques to read, interpret, and navigate commercial building plans and shop drawings related to masonry construction.

BLCT - 4542 Masonry Sketching & Detailing, 2.00 Credits

Prerequisite(s): BLCT 3706 with D or better

Level: Lower

This course presents the student with the proper knowledge, skill and techniques to produce simple sketches and/or shop drawings of masonry details as they pertain specifically to the masonry trade.

BLCT - 4552 Business Planning Masonry/Conc, 2.00 Credits

Prerequisite(s): BLCT 3706 with D or better

Level: Lower

This course presents the student with general knowledge of bidding, evaluating production costs, and presenting a detailed, concise proposal to a customer. An introduction to recordkeeping and overhead cost is presented to the student.