



# Capital Area Career Center

Course Handbook

2020-2021



# CAPITAL AREA CAREER CENTER (CACC)

## Course Handbook

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### AGRICULTURE, FOOD AND NATURAL RESOURCES

#### AGRICULTURAL & INDUSTRIAL MECHANICS I

Prerequisite: None

Open to: Juniors & Seniors

Length: Year

Dual Credit: No

Certification: No

This comprehensive machinery service course concentrates on the following areas: using service manuals, electrical applications for agricultural equipment, fundamentals of multi-cylinder engines, reconditioning and repairing agricultural equipment, assembling and adjusting agricultural equipment, organization and management of agricultural machinery dealerships, human relations, and sales techniques. Careers such as agricultural equipment salesperson, mechanic, parts manager, sales manager, service technician, and other related occupations will be examined. Improving workplace and computer skills will be a focus. Participation in FFA student organization activities and Supervised Agricultural Experience (SAE) projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

#### AGRICULTURAL & INDUSTRIAL MECHANICS II

Prerequisite: Agricultural & Industrial Mechanics I

Open to: Seniors with completion of Agricultural & Industrial Mechanics I

Length: Year

Dual Credit: ARG 208 Applied Skills in AG Mechanization

Certification: OHS/A

This course will concentrate on expanding student's knowledge and experiences with agricultural mechanics technologies utilized in the agricultural industry. Units of instruction included are: design, construction, fabrication, maintenance, welding, electricity /electronics, internal combustion engines, hydraulics, and employability skills. Careers of agricultural construction engineer, electrician, plumber, welder, equipment designer, parts manager, safety inspector, welder, and other related occupations will be examined. Improving workplace and computer skills will be a focus. Participation in FFA student organization activities and Supervised Agricultural Experience (SAE) projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.



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### HORTICULTURAL PRODUCTION & MANAGEMENT

Prerequisite: None

Open to: Juniors & Seniors

Length: Year

Dual Credit:

Certification: OHSA

This course offers instruction in both the greenhouse production and landscape areas of horticulture. Units of study include plant identification, greenhouse management, growing greenhouse crops, landscape design, installation, and maintenance, horticulture mechanics, nursery management, and turf production. Agribusiness units will cover operating a horticultural business, pricing work, advertising, and sales. Improving computer and workplace skills will be a focus. Participation in FFA student organization activities and Supervised Agricultural Experience (SAE) projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

### ARTS AND COMMUNICATIONS

#### AUDIO/VIDEO PRODUCTION I

Prerequisite: None

Open to: Juniors & Seniors

Length: Year

Dual Credit: No

Certification: No

This course is designed to provide students with the skills needed for a career in the technical aspects of radio and television broadcasting. Instruction includes camera operations, basic audio and video editing, sound and lighting techniques, and sound mixing. Students learn the operation, maintenance, and repair of video and DVD recording equipment, video/digital cameras, microphones, computers, lighting/grip equipment, and other production equipment used in the video and audio production of television programs. Students also learn to use, maintain, and repair various types of audio recorders, amplifiers, transmitters, receivers, microphones, and sound mixers to record and broadcast radio programs.



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### AUDIO/VIDEO PRODUCTION II

Prerequisite: Audio/production I

Open to: Seniors with completion of Audio/Video Production I

Length: Year

Dual Credit: No

Certification: No

This course is for students who have completed Audio/Video Production I. In addition to expanding on the activities explored in the first course, students work in a team-based environment to create a variety of video and audio related broadcasts. Instruction includes single and multi-camera operations, linear and nonlinear video editing, production and post-production processes, animation graphics, sound mixing, multi-track production, audio editing, and special effects. Students learn how to use digital editing equipment and software to electronically cut and paste video and sound segments together, as well as how to regulate and monitor signal strength, volume, sound quality, brightness, and clarity of outgoing signals. This course also provides students with an understanding of the FCC and other governmental agencies' regulations related to radio and television broadcasting.

### GRAPHIC ARTS I

Prerequisite: None

Open to: Juniors & Seniors

Length: Year

Dual Credit: No

Certification: No

Graphic Arts I provides learning experiences common to all graphic communications occupations. Instruction should include use of color, balance and proportion in design; three-dimensional visualization; sketching; design procedures; layout; selection of type styles; selection of appropriate drawing tools and media; and the use of the computer as a communication tool. Planned learning activities will allow students to become knowledgeable of fundamental principles and methods and to develop technical skills related to the graphic arts industry.



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### GRAPHIC ARTS II

Prerequisite: Graphic Art I

Open to: Seniors with completion of Graphic Arts I

Length: Year

Dual Credit: No

Certification: No

Graphic Art II provides learning experiences related to the tools, materials, processes and practices utilized in the printing industry. Instruction is provided in industrial safety; stencil preparation and duplicating equipment operation; print screen preparation and printing; machine typesetting; ink and color preparation; assembly, binding, and trimming operations; layout, digital paste up and copy preparation. In addition, the course provides the student with learning experiences in the use of cameras and photographic equipment, development and processing of photographic negatives and prints, negative stripping and related platemaking procedures, photocomposition, photoengraving, lithography, and offset presswork. Use of the computer in graphic arts occupations should be emphasized.

### PHOTOGRAPHY I

Prerequisite: None

Open to: Juniors & Seniors

Length: Year

Dual Credit: No

Certification: No

This course provides students with experiences related to the photography field including conventional and digital cameras. Planned experiences give students a clear and concise introduction in the following areas: safety and proper housekeeping of the photo studio, photography of visual and communicative discipline, constructing a usable cardboard camera and develop printing, learning basic terms, understanding how film /paperwork, proper exposure, working in the darkroom and knowing all necessary darkroom activities, safe use of photo chemicals, using dyes, and mounting and matting a completed photographic image. In addition, students are introduced to photographic terms, using light meters to measure natural and artificial lighting, using various lighting sources, manipulating basic backgrounds with different light sources, conducting shop operations, performing camera work, processing film and performing darkroom work on black and white and color film, printing photographic images, purchasing equipment and supplies, and the selection and use of cameras, film, lenses, accessories, tripods and filters.



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### PHOTOGRAPHY II

Prerequisite: Photography I

Open to: Seniors with completion of Photography I

Length: Year

Dual Credit: No

Certification: No

This course provides learning experiences related to the tools, materials, processes and practices utilized in the photography industry including conventional and digital cameras. Instruction includes arranging photography sessions, selecting and using cameras, film, lenses, and accessories, calculating and setting shutter speed, preparing darkroom equipment, mixing chemicals, processing film both black and white and color, printing photographic images such as enlargements, sandwich negatives, and copying slides. In addition, Commercial Photography II provides students with a better understanding of photographic images and their application in design. Students shoot photographs specifically for design layouts and in the process develop a better visual language, enhancing photo selection and editing skills. Students learn to visualize not only the look of the design, but also the structure and form of the photographs they shoot.

## FINANCE AND BUSINESS SERVICES

### CULINARY ARTS I

Prerequisite: None

Open to: Juniors & Seniors

Length: Year

Dual Credit: No

Certification: ServSafe Food Handlers

This course provides terminology, culinary math, and practical experiences needed for the development of culinary competencies and workplace skills. Safety and sanitation instruction and classroom application will prepare students for an industry-recognized sanitation exam. Classroom experiences will develop skills to work in the front of the house, back of the house, and work stations. Additional content may include: event planning, customer service and relations, food service styles, baking and pastry arts, hors d'oeuvres, and breakfast cookery. Students will be provided opportunity training experiences on commercial equipment.





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### CULINARY ARTS II

Prerequisite: Culinary Arts I

Open to: Seniors with completion of Culinary Arts I

Length: Year

Dual Credit: Waiting Approval

Certification: ServSafe FSSMC Manager's License

Culinary Occupations II places special emphasis for students to develop operational management skills -including design and organization of food service systems in a variety of settings, human relations, and personnel training and supervision. Additional topics include: food cost accounting; taking inventory; advertising; monitoring consumer and industry trends; and individualized mastery of culinary techniques. Training experiences involve equipment and facilities simulating those found in business and industry.

## HEALTH SCIENCES AND TECHNOLOGY

### EMERGENCY MEDICAL TECHNICIAN

Prerequisite: None

Open to: Seniors

Length: Year

Dual Credit: Waiting Approval

Certification: CPR, EMT-B (Must maintain 80 percent in course work and pass the state test)

Note: Must pass a 10-panel drug test

Emergency Medical Technology courses place a special emphasis on the knowledge and skills needed in medical emergencies. Topics typically include clearing airway obstructions, controlling bleeding, bandaging, methods for lifting and transporting injured persons, simple spinal immobilization, infection control, stabilizing fractures, and responding to cardiac arrest. The courses should also cover the legal and ethical responsibilities involved in dealing with medical emergencies. The Illinois Department of Public Health approves EMT training programs in the State of Illinois. Approved programs must meet or exceed the National Emergency Medical Services Education Standards for the Emergency Medical Technician and meet all other applicable requirements contained in 77 Illinois Administrative Code Part 515. To become licensed as an EMT-B in the State of Illinois or nationally certified, the student must be 18 years of age, complete a state-approved EMT program, have a current CPR-BLS for "Healthcare Provider" or equivalent credential, and pass the National Registry of Emergency Medical Technicians examination (required for national certification) or the Illinois Department of Public Health's EMT-B examination.



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### NURSING ASSISTANT

Prerequisite: None (may require passing a basic skills test in reading and math)

Open to: Juniors & Seniors

Length: Year

Dual Credit: No

Certification: CPR, CNA ( Must maintain 80 percent in course work, attend 40 CACC clinical hours, and pass the state test)

Note: Must have flu shot to attend clinicals

The course is composed of a combination of subject matter and experiences designed to perform tasks of individuals receiving nursing services. The student learns those competencies needed to perform as a nurse assistant under the direction of the registered nurse. The units of instruction should include the role of the nurse assistant while covering general health care topics; medical terminology; patients /clients and their environment; special feeding techniques; psychological support and, in long-term and terminal illness, death and dying (e.g., chronically ill, children, new mothers, and so on); and all other basic nursing skills. Topics covered typically include normal growth and development; feeding, transporting patients, hygiene, and disease prevention; basic pharmacology; first aid and CPR; observing and reporting; care of equipment and supplies; doctor, nurse, and patient relationships and roles; procedure and policies; medical and professional ethics; and care of various kinds of patients. In order to have an approved nurse assistant program (one in which the students are eligible to sit for the certifying exam), the program must be approved by the Illinois Department of Public Health and meet all applicable requirements contained in 77 Illinois Administrative Code Part 395.

### MEDICAL ASSISTANT

Prerequisite: None

Open to: Juniors & Seniors

Length: Year

Dual Credit: No

Certification: CPR, Certified Clinical Medical Assistant (must pass a national test)

Medical/Clerical Assisting course provides student development in a sequence of organized learning experiences and skills designed knowledge and skills that combine the medical and clerical fields. Students typically develop skills such as patient exam preparation, assessment of vital signs, routine lab procedures, medical transcription, financial accounting, patient and insurance company billing, and record-keeping. This course suggests common clerical duties which include answering phones; greeting patients/clients; handling mail, patient/client data files, and medical histories; ordering supplies; dealing with representatives from pharmaceutical companies and medical suppliers; and performing common clinical duties which include sterilizing instruments; preparing patients /clients for examination or treatment; taking temperatures, pulse, respiration, and blood pressure; measuring height and weight; performing routine laboratory procedures, and assisting the physician with patient/client examinations and treatment under the direction of the professional medical staff. In addition, the medical assistant should be able to understand the health problems of patients/clients, ethics and legal issues, human relationships, and interpersonal relationships.



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### HUMAN AND PUBLIC SERVICES

#### EARLY CHILDHOOD I

Prerequisite: None

Open to: Juniors & Seniors

Length: Year

Dual Credit: No

Certification: CPR, ECE Level 1

This course prepares students to guide the development of young children in an educational setting through classroom and job shadowing experiences. Course content includes child development, care, and education issues. Project-based learning experiences include planning and implementing developmentally appropriate activities, basic health and safety practices, and legal requirements of teaching young children. Students will research the requirements of early childhood education careers and develop/expand their career portfolio.

#### EARLY CHILDHOOD II

Prerequisite: Early Childhood I

Open to: Seniors with completion of Early Childhood I

Length: Year

Dual Credit: No

Certification: CPR,

This course prepares students to guide the development of young children in an educational setting through classroom and job shadowing experiences. Course content includes child development, care, and education issues. Project-based learning experiences include planning and implementing developmentally appropriate activities, basic health and safety practices, and legal requirements of teaching young children. Students will research the requirements of early childhood education careers and develop/expand their career portfolio.

#### COSMETOLOGY I

Prerequisite: None

Open to: Juniors & Seniors

Length: Year

Dual Credit: No

Certification: Hours toward license

The Cosmetology program must be approved and licensed by the Illinois Department of Financial and Professional Regulations, Division of Professional Regulation and meet all state and federal regulations. Cosmetology I provides introduces students to the requirements to become a licensed cosmetologist. It offers students instruction in both theory and practical application in the following areas: tools and their use, shampoo, understanding chemicals and use, types of hair, sanitation, hygiene, skin diseases and conditions, anatomy and physiology, electricity, ethics, nail technology and esthetics as they relate to the Barber, Cosmetology, Esthetics, and Nail Technology Act. Knowledge, skills, and activities completed in this course will help prepare students for Cosmetology II while earning hours towards licensure.



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### COSMETOLOGY II

Prerequisite: Cosmetology I

Open to: Seniors with completion of Cosmetology I

Length: Year

Dual Credit: No

Certification: Hours toward license

The Cosmetology program must be approved and licensed by the Illinois Department of Financial and Professional Regulations, Division of Professional Regulation and meet all state and federal regulations. Cosmetology II will build upon the knowledge and skills attained in Cosmetology I and will provide instruction, which may be a combination of classroom instruction and hands-on experience in the following areas: practical chemical application /hair treatment, hair styling/hairdressing, and shop management, sanitation and interpersonal relations as they relate to the Barber, Cosmetology, Esthetics, and Nail Technology Act, as well as labor and compensation laws. Instruction may also include instruction in nail technology, esthetics, individualized skill development, and career planning. This course offers a curriculum of advanced theoretical and practical skill development to prepare students for the cosmetology licensure examination and progression to obtain the 1500 hours of study in cosmetology.

### FIRE SCIENCE

Prerequisite: None

Open to: Juniors & Seniors

Length: Year

Dual Credit: Waiting Approval

Certification: No

This course is designed to provide students with the skills needed to prevent and extinguish fires, maintain and repair fire service related equipment, provide basic emergency medical treatment, and prepare public service information concerning fires and hazardous materials. Instruction includes the physical characteristics of fire as well as general safety practices, basic fire behavior, and extinguishing principles. Students learn rescue and extrication procedures, types and use of ground ladders, proper ventilation techniques, and appropriate use of various water supply systems, and how to use ropes and tie knots. Students also learn basic emergency medical techniques and practices which include medical-legal considerations, terminology, airway management, patient assessment and transportation, and emergency treatment.



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### LAW ENFORCEMENT I

Prerequisite: None

Open to: Juniors & Seniors

Length: Year

Dual Credit: No

Certification: No

This course is designed to prepare students to enter the fields of law enforcement and the criminal justice system. Instruction includes the history of law enforcement and the legal system, report writing and recordkeeping, criminal investigation techniques, and routine police procedures. Students learn how to use communications and dispatch equipment, perform proper search and seizure techniques, conduct basic criminal investigations, and execute correct pursuit and arrest procedures. Instruction also includes patrolling techniques, private security operations, traffic investigations, and community relations.

### LAW ENFORCEMENT II

Prerequisite: None

Open to: Juniors & Seniors

Length: Year

Dual Credit: No

Certification: No

This course provides experiences for students in basic investigative techniques for crimes against people and property. Learning activities emphasize the development of more advanced knowledge and skill than those provided in Law Enforcement I. Units of instruction include how to conduct a preliminary investigation and protect a crime scene, collect and preserve physical evidence including dusting latent prints, casting, fingerprint classification, and the use of portable crime laboratory equipment. Students learn how to conduct interviews, complete police reports, use police equipment, and testify in court. Instruction also includes traffic control, personal security, and law enforcement administration.



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### INFORMATION TECHNOLOGY

#### IT NETWORKING AND CYBERSECURITY I

Prerequisite: None

Open to: Juniors & Seniors

Length: Year

Dual Credit: LLCC 142 Introduction to Ethics, Security and Networking

Certification: CompTIA - Security +

This course provides an overview of current technology concepts and trends. It explores more fully computer security topics and the basic network, with a focus on understanding the most common threat types and implementing basic protection systems for device, data, and network protection. Professional ethics in the computer field will also be examined. Units of instruction will include; the key components of a computer network along with their main functions, the main security threats on today's technology, the different types of cybersecurity challenges that professionals are facing. Students will also learn best practices for a successful career in the field.

#### IT NETWORKING AND CYBERSECURITY II

Prerequisite: IT Networking and Cybersecurity I

Open to: Seniors with completion of IT Networking and Cybersecurity I

Length: Year

Dual Credit: LLCC 241 Security Plus

Certification: GSEC - Global Security Essentials Certification

IT Networking and Cybersecurity II is a skill-level course for students that have completed IT Networking and Cybersecurity I. Students will continue to build on the skills and concepts introduced in the first year. The course drives deeper into computer security topics and networks, with a focus on understanding the most common threat types and implementing basic protection systems for device, data, and network protection. Professional ethics in the computer field will also be examined. Units of instruction will include; the key components of a computer network along with their main functions, the main security threats on today's technology, the different types of cybersecurity challenges that professionals are facing. Students will also learn best practices for a successful career in the field.



# CAPITAL AREA CAREER CENTER (CACC)

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### IT OPERATIONS AND PROGRAMMING I

Prerequisite: None

Open to: Juniors & Seniors

Length: Year

Dual Credit: Waiting Approval

Certification: Python Entry-Level Programmer

Computer Operations and Programming I is the first of two skill-level courses designed to develop computer programming and program design skills through the use of various programming languages such as Python, C#, Java, and other object-oriented languages. Students will be exposed to the fundamentals of system analysis and design (e.g. flowcharting, diagramming, system design and planning), and the systems development life cycle. Instruction will include basic programming tools that are common to many programming languages. These may include items such as input /output statements, constants, assignment statements, string and numeric variable types, conditional processing, and branching and looping control structures. Students will learn programming techniques such as counting, averaging, rounding, and generation of random numbers to develop a good programming technique. Students will apply what they learn to create programs and applications that solve real-world business-related problems. Students will create programs to store, locate and retrieve data.

### IT OPERATIONS AND PROGRAMMING II

Prerequisite: IT Operations and Programming I

Open to: Seniors with completion of IT Operations and Programming I

Length: Year

Dual Credit: Waiting Approval

Certification: Python Associate Programmer

Computer Operations and Programming II is a skill-level course for students who have completed Computer Operations and Programming I. Students will use procedural and object-oriented programming languages such as Python, C# and Java. Students will learn programming concepts such as inheritance and polymorphism, advanced data handling (pointers, arrays, strings, and files), and common algorithms (recursion, searching and sorting). Students will be able to write, compile, run, test, debug and modify programs and applications that solve real-world problems. Problem examples may include tracking inventory, scheduling rooms and facilities, accessing information and performing calculations.



# CAPITAL AREA CAREER CENTER (CACC)

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### MANUFACTURING, ENGINEERING, TECHNOLOGY AND TRADES

#### AUTOMOTIVE TECHNOLOGY AND SERVICING I

Prerequisite: None

Open to: Juniors & Seniors

Length: Year

Dual Credit: LLCC AUT 101 Fundamentals of Automotive Technologies

Certification: ASE Student Certifications

This course introduces students to the basic skills needed to inspect, maintain, and repair automobiles and light trucks that run on gasoline, electricity, or alternative fuels. Instructional units include engine performance, automotive electrical system, integrated computer systems, lubrication, exhaust and emission control, steering and suspension, fuel systems, cooling system, braking, and power train.

#### AUTOMOTIVE TECHNOLOGY AND SERVICING II

Prerequisite: Automotive Technology and Servicing I

Open to: Seniors with Automotive Technology Servicing I

Length: Year

Dual Credit: LLCC AUT 106 Brake Systems

Certification: ASE Student Certifications

This course is a continuation of and builds on the skills and concepts introduced in Automotive Technician I. This course includes instructional units in alternative fuel systems, computerized diagnostics, new vehicle servicing, automotive heating and air conditioning, transmissions, testing and diagnostics, drive train and overall automobile performance.





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### COLLISION REPAIR I

Prerequisite: None

Open to: Juniors & Seniors

Length: Year

Dual Credit: AUB 101 Basic Auto Body Repair

Certification: ASE Student Certification

This course provides learning experiences designed to allow students to gain knowledge and skills in repairing automotive bodies and fenders. Planned learning activities in this course are balanced to allow students to become knowledgeable in the fundamental aspects of auto body repair methods and techniques, and to develop practical skills in the basic operations required to prepare the automobile for final paint application. Instruction emphasizes safety principles and practices, hazardous materials, auto body nomenclature, function of individual components, the use of parts manuals, the identification of replacement parts, the use of auto body fillers, the use of plastic/glass fillers and special body repair tools, refinishing problems, and paint preparation procedures. Practical activities relate to experiences in writing and calculating damage estimates, removing and installing body panels, trim, and glass; straightening by using hammers, bucks, and jacks; and smoothing by filing, grinding, and using fillers. Students also learn to prime the area to be painted and prepare the surface for final paint application. These experiences and skills are related to metal, fiberglass, or urethane components.

### COLLISION REPAIR II

Prerequisite: None

Open to: Juniors & Seniors

Length: Year

Dual Credit: AUB 102 Auto Body Metal Finishing

Certification: ASE Student Certification, OSHA

This course provides learning experiences designed to further enhance the students' skills in performing more advanced tasks related to automotive body and fender repair. Learning activities in this course emphasize the successful application of the final paint coat and the preparation that precedes it. Emphasis is also placed upon the identification and correction of imperfections and finish buffing of the final coat. Student learning activities include instruction in safety principles and practices, hazardous materials, types and qualities of paints, colors, and refinishing problems; glass standards and installation, special alignment techniques, customer relations, damage estimating, and insurance adjustments. Student practical activities relate to experiences in estimating collision damage costs, preparing customer bills, removing and replacing glass surfaces, selecting paints, repainting minor and major damages, repainting total car body, drying or baking painted surfaces, post-paint cleanup, and post-paint polishing.



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### BUILDING TRADES I

Prerequisite: None

Open to: Juniors & Seniors

Length: Year

Dual Credit: Waiting Approval

Certification: NCCER

This course provides experiences related to the erection, installation, and maintenance of residential buildings and related fixtures. Planned learning activities allow students to understand fundamental principles and methods, and develop technical skills related to masonry, carpentry, and finish work. Instruction includes safety principles and practices, recognition of standard lumber sizes, foundation layout methods, building concepts and procedures, local, state, and national codes, cost estimating, and blueprint reading.

### BUILDING TRADES II

Prerequisite: Building Trades I

Open to: Seniors with Building Trades I

Length: Year

Dual Credit: Waiting Approval

Certification: OHSA, NCCER

This course provides learning experiences related to the erection, installation, maintenance, and repair of building structures and related utilities. Student technical skill experiences include instruction and activities in safety principles and practices, performing maintenance control functions, joining pipes, building water distribution lines and drains, installing and maintaining plumbing fixtures and systems, installing switch and outlet boxes, light fixtures, service entrances, roughing in and trimming out electrical devices and appliances, preparing foundations and footings, constructing residential chimneys and fireplaces, laying, jointing and pointing brick, and advanced building and construction methods and codes. All learning experiences are designed to allow the student to acquire job-entry skills and knowledge.



# CAPITAL AREA CAREER CENTER (CACC)

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### HVAC AND ELECTRICAL SYSTEM TECHNOLOGY I

Prerequisite: None

Open to: Juniors & Seniors

Length: Year

Dual Credit: Waiting Approval

Certification: EPA 608 Certification, Employment readiness heat pump operation, Installation and service certification, Employment readiness gas heating certification

This course is an introduction to the principles and practices employed in the installation, maintenance, and repair of basic air conditioning, heating systems, and basic electrical systems. Instruction is provided in safety precautions related to electricity, heating units, rotating machinery, refrigerants, and the use of power tools. Instruction includes basic electrical concepts, circuits, transformers, motors and motor controls, and circuit protection devices. Emphasis is also placed on basic refrigeration principles, gas laws, pressure, fluidics, heat and heat transfer, refrigerants, compressors, lubrication systems, electrical theory and circuit design and operation. Activities include experiences in using hand tools, gauges, and test instruments used in both the HVAC and electrical field. Other activities included reaming, flaring, swaging, bending, soldering, and brazing copper tubing; evacuating and charging refrigeration systems, and inspecting and testing electrical and air conditioning circuits and component parts.

### HVAC AND ELECTRICAL SYSTEM TECHNOLOGY II

Prerequisite: HVAC and Electrical System Technology I

Open to: Juniors & Seniors

Length: Year

Dual Credit: Waiting Approval

Certification: OSHA, EPA 608 Certification, Employment readiness heat pump operation, Installation and service certification, Employment readiness gas heating certification

This course builds on the foundational skills introduced in HVAC and Electrical System Technology I. Students learn the mechanics and electrical fundamentals needed to work as a HVACR technician and/or electrician. Installation, maintenance, and repair of residential forced air heating systems, alternative energy sources, hydronic heating systems, heat pumps, and air conditioners are taught. The course will also cover advancing basic theory, multi-phase electricity, transmission and delivery systems, electronic and advanced motor controls, alarm and sensory systems, light commercial and industrial wiring, and advanced circuit design. Students continue to gain practical skills by working on trainers, mock-ups, and on-the-job projects.



# CAPITAL AREA CAREER CENTER (CACC)

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### ELECTRONIC AND ENGINEERING I

Prerequisite: None

Open to: Juniors & Seniors

Length: Year

Dual Credit: No

Certification: No

This course introduces students to the skills needed to service, repair, and replace a wide range of equipment associated with automated or instrument -controlled manufacturing processes. Planned learning activities in this course allow students to become more knowledgeable in the fundamental principles and theories of electrical/electronic and hydraulic/pneumatic equipment as applied to instrumentation devices and digitally encoded radio equipment. Instruction also includes safety principles and practices, semi-conductors and transistor theory, electrical parameters and circuits, electronic component function and identification, and the use and care of related hand tools, power tools, and test equipment.

### ELECTRONIC AND ENGINEERING II

Prerequisite: Electronic and engineering I

Open to: Seniors with completion of Electronic and Engineering I

Length: Year

Dual Credit: No

Certification: No

This course provides planned learning activities designed to allow students to gain knowledge and skills in testing, maintaining, and repairing electronic equipment and systems used in the manufacturing industry. Learning activities in this course emphasizes the development of more advanced knowledge and skills than those provided in Industrial Electronics I. Skills introduced in this course include instruction in the interpretation of technical sketches, schematics, and circuit diagrams. Additional units of instruction include the identification and causes of equipment malfunctions, the repair and replacement of parts and equipment, the care and use of standard tools, equipment, and specialized instrumentation testing devices.

### WELDING I

Prerequisite: None

Open to: Juniors & Seniors

Length: Year

Dual Credit: LLCC WEL 101 Basic Arc & Oxyacetylene Welding

Certification: No

This course assists students in gaining knowledge and developing the basic skills needed to be successful in the welding industry. Units of instruction include stick, MIG and TIG welding, basic metallurgy, cutting metal using manual processes, plasma arc cutting, and oxy-acetylene cutting processes. Students in this class focus primarily on T-joints and lap welds in all positions. In addition, students learn the basics of blueprint reading, hand tools, precision measuring, layout, and basic shop operations.



# CAPITAL AREA CAREER CENTER (CACC)

## Course Handbook

### WELDING II

Prerequisite: Yes

Open to: Seniors with Welding I

Length: Year

Dual Credit: LLCC WEL 102 Welding Blueprint Reading, LLCC WEL 103 Shielded Metal Arc Welding

Certification: OSHA

This course builds on the skills and concepts introduced in Welding Technology 1 and provides more in-depth skill development in various types of welding. Students will focus primarily on beveling, fit-up, and welding of groove welds in all positions using stick, TIG, and MIG welding processes. An introduction to spray transfer MIG, TIG aluminum, flux-core welding, open root processes, and the basics of pipe welding will be covered. Welding 2 students will be introduced to repair welding as well as basic fabrication techniques. Shop math will be covered more in-depth and will cover area, volume, material weight, and the use of the Pythagorean theory.

## WORKFORCE DEVELOPMENT

### COOPERATIVE EDUCATION

Prerequisite: None (Internal Review Procedure)

Open to: Seniors

Length: One semester or one year

Dual Credit: No

Certification: Dependant on job

Cooperative Education is a capstone course designed to assist students in the development of effective skills and attitudes through advanced instruction in school and on the job training. Students are released from school for paid cooperative education work experience (at least 10 hours per week) and for participation in related classroom instruction. Students are placed in paid positions in local businesses within the career field they are studying at CACC.

Students are selected for this program using the following criteria/procedure:

- Program instructor recommendation
- Interview with the cooperative education coordinator
- Transcript evaluation by the coordinator
- Attendance
- Discipline

Students will then interview with a local business selected by the coordinator. Parent and home school administration approval will also be needed before a student can begin a cooperative education experience.

As part of the cooperative education program, students may also be enrolled in a registered apprenticeship. This allows the student to obtain a national Department of Labor certification. See CACC administration for details.