Career Information (SOC Codes):
http://www.onetonline.org/link/summary/31-9099.00
http://www.onetonline.org/link/summary/31-9097.00
http://www.onetonline.org/link/summary/29-2012.00

Program Accreditation: The Erwin Technical Center Medical Clinical Laboratory Technology (ATD) program is accredited by the Accrediting Bureau of Health Education Schools (ABHES), 777 Leesburg Pike, Suite 314 – N., Fall Church, VA 22043. Phone: (703) 917-9503.

Course Description:
The program is designed to train students to perform routine tests in the laboratory departments of chemistry, bacteriology, parasitology, urinalysis, hematology, serology, and blood bank. The technician finds causes of diseases through diagnostic testing procedures so that the physician can find the cures. The program consists of approximately one half year of internship in Tampa's hospitals or a private reference laboratory.

The Medical Clinical Laboratory Technology program at Erwin Technical Center has one classroom and a large laboratory area. The laboratory is well equipped with instrumentation found in professional medical laboratories, including specific equipment for analyzing specimens for chemistry, hematology, urinalysis, coagulation, microbiology, and point-of-care testing.

Articulation: Students completing the course will receive 40 hours of credit toward an Associate Degree at any community college in the State of Florida that offers the Medical Laboratory Technical Program.

Special entrance requirements: high school graduates or associate degree or bachelor's degree. Enrollment is once a year. Physicals are required for admission to the program. Applicants should be aware that the State of Florida Department of Health may prohibit a graduate licensure if there is an arrest record. Criminal background checks and a random drug screening are required for students entering this program.

Prerequisite skills: Medical Laboratory Technicians have certain common characteristics. They are problem solvers, like challenge and responsibility. They are accurate in task performance, are reliable, emotionally stable, work under pressure and stress, able to finish a task and communicate well. They set high standards for themselves and expect quality in the work they do. They are committed to their profession.

Job Opportunities: Students have a number of career choices: private laboratories, hospitals, walk in clinics, public health departments, doctor’s offices and university laboratories. There are opportunities for advancement if you continue your education in this field.

All Medical Laboratory personnel, in order to work in the state of Florida, must be licensed. This is accomplished by taking national certification exams offered by the ASCP (American Society of Clinical Pathologists), AMT (American Medical Technologists) or the AAB (American Association of Bioanalysts).
Completion Credential: To qualify for graduation and receipt of an Applied Technology Diploma from the Medical Clinical Laboratory Technology program, the following courses must be satisfactorily completed with a GPA of 2.0 or greater and all other school requirements fulfilled.

The issuing of the diploma is not contingent upon the student passing an external certification or licensure exam.

MEDICAL CLINICAL LABORATORY TECHNOLOGY - ATD

(Medical Laboratory Technician) H170600 1515 hours

A1 – C14 Classroom / Lab training, first 11 months:

HSC0003 – Basic Healthcare Worker (90 clock hours)

A1 - Health Science Core (90 hours)
This course has been designed to introduce the Allied Health student to the health care profession and satisfies prerequisite competencies for all Health Occupation Programs in the state of Florida. The content includes communication skills as it applies to the professional medical environment, learning and study strategies, math and computational skills, legal and ethical practices, employability skills, safety and security procedures, medical terminology, scientific principles based on fundamental body structure and function, infection control, HIV/Bloodborne Pathogen awareness, CPR, First Aid, wellness and disease concepts, computer literacy, and representative skills performed by health care workers, such as vital signs and infection control techniques.

MEA0520 – Phlebotomist (75 clock hours)

B1 – Phlebotomy (75 hours)
This course is designed to train the students to perform phlebotomy procedures to obtain blood for laboratory analysis. Instruction is given in anatomy and physiology relative to phlebotomy procedures, blood collection equipment and supplies, venipuncture collection procedures, skin puncture procedures, special collection procedures, nonblood specimens and tests, quality assurance, specimen processing, communications and computers.

MLT0009 – Introduction to Medical Laboratory Technology (90 hours)

C1 - Introduction to Medical Laboratory Technician Theory (60 hours)
This course includes instruction in basic theory and laboratory techniques in microbiology, chemistry, hematology and urinalysis. Urinalysis includes discussion of the anatomy and physiology of the urinary system; specimen collection & preservation; and physical, chemical, and microscopic tests. Microbiology includes discussion of sterilization; disinfection; gram stain; isolation techniques; inoculation and transfer of cultures; and use of the microscope. Chemistry includes discussion of metric measurement; glassware; pipets; reagent preparation; balances; spectrophotometry; calibration; standards; controls; and normal and abnormal physiology. Hematology includes discussion of formed elements of the blood; blood smear preparation/staining; differential counts; microhematocrit; bleeding/clotting times; hemoglobin tests; calculation of red blood cell indices; and normal and abnormal physiology. This course
also includes instruction in Laboratory Information Systems (LIS) including accessioning, order entry and result reporting.

**C2 - Introduction to Medical Laboratory Technician Lab (30 hours)**
The student will perform basic CLIA “waived” procedures in chemistry, hematology, urinalysis, and microbiology.

**MLT0640 – Clinical Chemistry (255 hours)**

**C3 - Chemistry Theory (90 hours)**
Chemistry begins with an introduction to basic chemistry to include periodic table, atoms, molecules, electron configuration, molecular weight, percent composition, formulas, compounds, solutions, dilutions, quality control and instrumentation.

The remaining portion of the course consists of theory of operation of instruments to include physical and chemical principles, application/use of instruments; theory and application of physiological biochemistry to include normal and abnormal physiology, test procedures, interpretation, and quality control applied to carbohydrates; electrolytes; acid/base balance; proteins; NPN compounds; enzymes; lipids; the cardiac markers; direct and indirect bilirubin; trace elements; toxicology; therapeutic drug monitoring; and endocrinology.

**C4 - Chemistry Lab (60 hours)**
The student will perform the following tests using the appropriate instrumentation or manual methodology: Glucose, BUN, Creatinine, Sodium, Potassium, Chloride, Calcium, Total Protein, Albumin, AST, ALT, Cholesterol, TBili, T4, TSH, and protein electrophoresis. This course also includes instruction in the Laboratory Information System. (LIS)

**C15 – Clinical Chemistry (105 hours)**
Completed during Clinical Internship portion, during first 5 months of the program.

**MLT0450 – Microbiology and Parasitology (275 hours)**

**C5 - Microbiology Theory (100 hours)**
Instruction is given in bacteriology including: taxonomy/classification, physiological requirements, asepsis/sterilization, safety, media (classification/preparation/inoculation), staining procedures, biochemical testing and identification, antibiotic susceptibility testing, quality control, microscope, and diseases associated with bacteria. An brief overview of mycology will be included.

Instruction will also be given in parasitology including: protozoa, nematoda, and cestoda terminology, common and scientific names, geographical locations where parasites are found, life cycles, specimen requirements, and procedures for identification of the parasites, and major pathology and symptoms.

**C6 - Microbiology Lab (60 hours)**
Students will perform various laboratory techniques for the identification of normal and pathogenic microorganisms. Special unknowns are given to each student for identification following class identification of microorganisms with the instructor. Microscopic morphology and colony characteristics are described. Specimens are prepared and examined for identification of ova and parasites. Antimicrobial drug sensitivity testing will also be performed.
C16 – Clinical Microbiology (115 hours)
Completed during Clinical Internship portion, during first 5 months of the program.

MLT0220 – Urinalysis and Body Fluids (135 hours)

C7 - Urinalysis Theory (60 hours)
This course includes Instruction in: renal physiology, specimen collection and handling, routine urinalysis (physical and chemical testing), microscopic examination, interpretation of results, quality control and principles and procedures of body fluid analysis.

C8 - Urinalysis Lab (45 hours)
This course provides the hands-on laboratory testing of urine to include the following: physical characteristics (color, transparency, specific gravity, and pH), chemical testing for glucose, ketones, protein, bilirubin, blood, urobilinogen, nitrates, leukocyte esterase, and microscopic examination of the urinary sediment. In addition, instruction will be given in the physical, chemical, and microscopic evaluation of common body fluids.

C17 – Clinical Urinalysis (30 hours)
Completed during Clinical Internship portion, during first 5 months of the program.

MLT0335 – Hematology and Hemostasis (280 hours)

C9 - Hematology Theory (100 hours)
This course includes instruction in cellular morphology and development, blood cell counts, hemoglobin, hematocrit, red blood cell indices, sedimentation rate, differential counts, erythrocyte disorders and anemias, leukocytic disorders, and leukemias, hemostasis, and instrumentation.

C10 - Hematology Lab (60 hours)
Students will perform routine hematological and coagulation procedures using manual procedures and instrumentation achieving results within established quality control procedures.

C18 – Clinical Hematology (120 hours)
Completed during Clinical Internship portion, during first 5 months of the program.

MLT0505 – Immunology (60 hours)

C11 - Immunology Theory (45 hours)
This course includes instruction in adaptive and natural immunity, the immune system, the immune response, cells of the immune system, antigen and antibody reactions, complement, interleukens, major histocompatibility complex, hypersensitivity reactions, immunoglobulins structure and function, and safety techniques. In addition, instruction is given in disease processes and laboratory tests associated with bacterial, viral, rickettsial, and autoimmune diseases. Syphilis, C-Reactive protein, rheumatoid arthritis, infectious mononucleosis, hepatitis, rubella, cytomegalovirus, HIV, lupus erythematosus, Group A strep, and Lyme disease are discussed. Principles of immunologic methods are discussed including agglutination, precipitation, flocculation, complement fixation, labeled immunoassays, immunoelectrophoresis, and molecular techniques.
C12 - Immunology Lab (15 hours)
Students will perform basic agglutination, precipitation, and labeled immunoassay procedures in serology to test for syphilis, rheumatoid arthritis, viral infections, infectious mononucleosis, C-reactive protein, streptococcal infections, influenza, and pregnancy. In addition, students will perform serial dilutions to determine antigen/antibody titers.

MLT0520 – Immunohematology (255 hours)

C13 - Blood Bank Theory (90 hours)
This course includes instruction in the inheritance of the ABO blood group, Rh blood group and other blood groups including the Duffy, Lewis, MNSs, Lutheran, Kidd, and Kell group; antigen-antibody reactions due to transfusions, pregnancy or autoimmune disease; and direct/indirect antiglobulin tests to include antibody detection, antibody identification, and compatibility testing. In addition, elution, absorption, enzyme testing and the rationale for each test will be covered.

C14 - Blood Bank Lab (60 hours)
Students will perform routine immunohematological procedures to include antigen and antibody tests to establish ABO group and Rh, routine compatibility test, antibody screening, single and multiple antibody identification tests, direct antiglobulin tests, and direct antigen tests. Students will also prepare a red blood cell suspension, select the proper suspending medium for red blood cells, grade and interpret agglutination reactions, perform manual and automated cell washing procedures, and perform quality control on blood bank reagents.

C19 – Immunohematology (105 hours)
Completed during Clinical Internship portion, during first 5 months of the program.

C15 – C19 Clinical Internships, last 5 months:

C15 – Clinical Chemistry (105 hours)
C16 – Clinical Microbiology (115 hours)
C17 – Clinical Urinalysis (30 hours)
C18 – Clinical Hematology (120 hours)
C19 – Clinical Blood Bank (105 hours)

Clinical internship consists of approximately five months in one of the following facilities: Brandon Regional Hospital; Lab Corp; St. Joseph's Hospital; Florida Hospital Tampa; South Florida Baptist Hospital; Bond Clinic; Watson Clinic; Lakeland Regional Medical Center; Pasco Regional hospital; and Florida Medical Clinic. Students will be under the supervision of lab personnel and will perform routine lab tests in each of the following areas: Chemistry; Urinalysis; Microbiology; Immunology; Hematology; and Blood Bank. Assignment of clinical internship will be made by and scheduled by the program instructors.
MEDICAL CODER/BILLER - ATD

<table>
<thead>
<tr>
<th>Program Length</th>
<th>State Program Number</th>
<th>CIP Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000 clock hours</td>
<td>H170528</td>
<td>0351070703</td>
</tr>
</tbody>
</table>

FLDOE State Curriculum Framework:
Link:  • Medical Coder/Biller (H170528)

Program Information: The program is 1000 clock hours. This program is taught in English, in a traditional classroom setting, during the day.

Program Costs (2013-14 academic year): Tuition fees are $2.67 per clock hour, for Florida residents, for classes scheduled from 7/1/13 to 6/30/14. Fees, books, supplies, and certification exam amounts are approximate and subject to slight changes.

<table>
<thead>
<tr>
<th>Florida Resident Tuition (1000 clock hrs)</th>
<th>Fees</th>
<th>Estimated Tools/Books/Supplies</th>
<th>Certification Exams</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,670.00</td>
<td>114.50</td>
<td>1594.50</td>
<td>399.00</td>
</tr>
</tbody>
</table>

Course Sequence: Courses must be successfully completed in the order shown below, according to school policies.

<table>
<thead>
<tr>
<th>OCP</th>
<th>Course #</th>
<th>Course Title</th>
<th>Length</th>
<th>SOC Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>HIM0009</td>
<td>Introduction to Health Information Technology*</td>
<td>90 hours</td>
<td>29-2099</td>
</tr>
<tr>
<td>B</td>
<td>HIM0071</td>
<td>Medical Coder/Biller 1</td>
<td>300 hours</td>
<td>29-2071</td>
</tr>
<tr>
<td>B</td>
<td>HIM0072</td>
<td>Medical Coder/Biller 2</td>
<td>300 hours</td>
<td>29-2071</td>
</tr>
<tr>
<td>B</td>
<td>HIM0073</td>
<td>Medical Coder/Biller 3</td>
<td>310 hours</td>
<td>29-2071</td>
</tr>
</tbody>
</table>

Licensure Information: Graduates are eligible and highly encouraged to take the CCA, CCS or CPC certifying exam.

Career Information (SOC Codes):
http://www.onetonline.org/link/summary/29-2099.00  
http://www.onetonline.org/link/summary/29-2071.00
Course Description:
The Medical Billing and Coding Specialist program is designed to prepare students for employment in a variety of health care settings as an entry level coder, medical record coder or medical biller/coder.

The medical coder plays an important role in the collection, storage and retrieval of health data and with much of the billing process involving coded information, the coder's accuracy affects the financial security of a medical care institution.

The content includes, but not limited to, medical terminology, anatomy and physiology, basic and advanced coding systems (ICD-9 CM and CPT), fundamentals of disease process including pharmacology, health care delivery systems, basics of medical records services, medical record content, ethical and legal responsibilities, safety and security procedures, basic data processing, knowledge of medical billing including completion of CMS 1500 forms and employability skills.

This program is part of the Health Information Management or Office System Technology AS degree and guarantees transfer of credit of 26 hours toward an AS degree. Minimum entrance requirements for this program include a high school diploma or GED.

Criminal background checks and random drug screenings are required for students entering this program.

Job Opportunities: Skilled workers are in demand and there are excellent opportunities for career choices. Besides working in a medical records department of acute care hospitals, coders work in ambulatory setting, specialty hospitals, long-term care facilities, rehabilitation centers, insurance companies, review agencies, law firms and contract agencies designed to provide temporary services to the aforementioned facilities.

To qualify for an Applied Technology Diploma, the following courses must be satisfactorily completed:

MEDICAL CODER/BILLER - ATD
(Medical Billing & Coding) H170528 1000 Hours

HIM0009 – Introduction to Health Information Technology (90 clock hours)

A01 – Introduction to Health Information Technology (90 hours)
This course has been designed to introduce the Allied Health student to the health care profession and satisfies prerequisite competencies for all Health Occupation Programs in the state of Florida. The content provides instruction in the competencies essential to the success in the occupation, including job knowledge, job skills, work habits, attitudes and job-related health, safety and fire-prevention. The content also includes an understanding of healthcare delivery systems and health occupations as well as professional associations, communication skills as it applies to the professional medical environment, uses of health data and health record, electronic health record medical terminology, legal and ethical practices including HIPAA, computer literacy, and employability skills.
HIM0071 – Medical Coder/Biller 1 (300 clock hours)

B01 - Medical Record Content I (40 hours)
This course is an introduction to health information management including its history, functions and importance in the health area industry. Students will learn to read, interpret and manage the content of medical records in inpatient and outpatient settings. Methods of filing and retention of medical records will also be discussed.

B02 - Anatomy and Physiology I (50 hours)
This course addresses the organization of the body from cells to body systems. It is designed to provide general knowledge of the structure and function of the following: skin, skeletal system, muscular system, nervous system, the brain, sensory organs and endocrine system.

B03 - Medical Terminology I (35 hours)
This course covers medical terminology relevant to the following: prefixes, suffixes, basic body structure, skin, musculoskeletal system, nervous system including the brain, special senses, and endocrine system.

B04 - Disease Process I (15 hours)
This course exposes the student to etiologies, pathologies and treatments associated with common diseases of the skin, musculoskeletal system, nervous system, special senses and endocrine system.

B05 - Medical Record Content II (40 hours)
This course introduces classification systems and their use in medical statistical information and their impact in reimbursement. Computers and other information systems as they pertain to health care will be discussed. An overview of the legal aspects of medical record information will be presented. Students will also learn about quality control of medical care and the organizations that govern it.

B06 - Anatomy and Physiology II (50 hours)
This course is designed to provide general knowledge of the structure and function of the following: blood, cardiovascular system, lymph, immune system, respiratory system, digestive system, metabolism, fluids, urinary system and reproductive system. Development and the hereditary process will also be covered.

B07 - Medical Terminology II (35 hours)
This course covers medical terminology relevant to blood, cardiovascular system, lymph, immune system, respiratory system, digestive system, urinary system, and reproductive system. Oncological medicine is also infused into this course.

B08 - Disease Process II (15 hours)
This course exposes the student to etiologies, pathologies, and treatments associated with common diseases of the blood, cardiovascular system, lymph, immune system, respiratory system, digestive system, urinary system and reproductive system.

B09 – Pharmacology (20 hours)
This course provides an understanding of basic pharmacology concepts such as drug terminology, abbreviations, drug effects and dosages. The student will become familiar with drug reference books.
HIM0072 – Medical Coder/Biller 2 (300 clock hours)

B10 - Medicolegal Aspects (60 hours)
This course provides the student with an understanding of the legal requirements designed to safeguard health care information including specialized areas of concern in health information management.

B11 - Basic ICD-9 Coding (80 hours)
This course introduces the student to the ICD-9 coding book including instructional notations and conventions. The student will locate and assign diagnostic codes and inpatient procedure codes manually to assigned exercises. Introduction to ICD-10 and ICD-10-PCS.

B12 - Basic CPT-4 Coding (75 hours)
This course introduces the student to the CPT-4 coding book including instructional notations and conventions. The student will locate and assign evaluation and management codes and outpatient procedure codes manually to assigned exercises.

B13 - Insurance I (50 hours)
This course acquaints the student with the role of the insurance billing specialist and the basics of health insurance including the CMS-1500 claim form. It also provides an introduction to electronic data interchange and discusses methods for tracing delinquent claims. The computer software, Medisoft, is presented for completion of a project.

B14 - Coding Reference (20 hours)
The student will learn how to use resources to assist in assigning codes and maximize reimbursement.

B15 - Hospital Billing (15 hours)
This course acquaints the student with the hospital billing process and introduces the UB-04 billing form as it pertains to inpatients and outpatients. Criteria for admission certification are reviewed. The student will become familiar with the role of Diagnostic Related Groups as they relate to hospital billing.

HIM0073 – Medical Coder/Biller 3 (310 clock hours)

B16 - Advanced CPT-4 Coding (60 hours)
This course builds on the Basic CPT-4 Coding course with more complex professional services and outpatient procedures. This course also prepares the student to correlate outpatient procedure codes with appropriate diagnoses. The student will also learn appropriate modifier assignment.

B17 - Insurance II (50 hours)
This course provides an understanding of the history, claim and reimbursement procedures of the following insurance plans: managed care systems, Blue Cross/Blue Shield, Medicaid, Medicare, Tricare and Workers’ Compensation. Disability is also discussed. The computer software Medisoft is utilized for completion of a project.
B18 - Advanced ICD-9 Coding (60 hours)
This course builds on the Basic ICD-9 coding course with more complex diagnoses and inpatient procedures. This course also prepares the student to recognize complications and comorbidities in the medical record to maximize reimbursement. The student will also learn to sequence diagnostic codes and inpatient procedure codes appropriately.

B19 - Computerized Coding (40 hours)
This course provides a hands-on opportunity for the student to search software for diagnoses, procedures and their pertinent codes in a timely and accurate manner.

B20 – Externship (100 hours)
The student will spend time in a health care facility, insurance office or billing service to observe and practice learned skills under the direction of that facility’s personnel. Assignment of externship location will be made by the program instructor.
NURSING ASSISTANT

<table>
<thead>
<tr>
<th>Program Length</th>
<th>State Program Number</th>
<th>CIP Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>165 clock hours</td>
<td>H170690</td>
<td>0351390203</td>
</tr>
</tbody>
</table>

FLDOE State Curriculum Framework:
   Link: • Nursing Assistant (Articulated) (H170690)

Program Information: The program is 165 clock hours. This program is taught in English, in a traditional classroom setting, during the day.

Program Costs (2013-14 academic year): Tuition fees are $2.67 per clock hour, for Florida residents, for classes scheduled from 7/1/13 to 6/30/14. Fees, books, supplies, and certification exam amounts are approximate and subject to slight changes.

<table>
<thead>
<tr>
<th>Florida Resident Tuition (165 clock hrs)</th>
<th>Fees</th>
<th>Estimated Tools/Books/Supplies</th>
<th>Certification Exams</th>
</tr>
</thead>
<tbody>
<tr>
<td>440.55</td>
<td>128.50</td>
<td>96.45</td>
<td>158.50</td>
</tr>
</tbody>
</table>

Course Sequence: Courses must be successfully completed in the order shown below, according to school policies.

<table>
<thead>
<tr>
<th>OCP</th>
<th>Course #</th>
<th>Course Title</th>
<th>Length</th>
<th>SOC Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>HSC0003</td>
<td>Basic Healthcare Worker</td>
<td>90 hours</td>
<td>31-9099</td>
</tr>
<tr>
<td>B</td>
<td>HCP0121</td>
<td>Nurse Aide and Orderly (Articulated)</td>
<td>75 hours</td>
<td>31-1014</td>
</tr>
</tbody>
</table>

Licensure Information: Graduates are eligible and highly encouraged to take the Florida CNA license exam.

Career Information (SOC Codes):
http://www.onetonline.org/link/summary/31-9099.00
http://www.onetonline.org/link/summary/31-1014.00
**Course Description:** This 165 hour, Florida Board of Nursing Approved Nursing Assistant Program prepares students to pass the Florida Nurse Aide Certification examination and to achieve the entry level skills necessary to be employed as nursing assistants, nurse aides, and orderlies in nursing homes. Students who complete the 165 hours are awarded OCP A and B. Completers may choose to enroll in OCP C, the Advanced Home Health Aide course. If a student has completed OCP A at another institution within the previous two years, transfer credit will be awarded and a student may enter after the first 90 hours of class.

**Job Opportunities:** Clinics, congregate living facilities, home health care agencies, hospitals, private and governmental industry, private duty, nursing homes. All nursing assistants working in long term care in Florida must be certified by the State of Florida. To qualify for a certificate, the following courses must be satisfactorily completed:

**Nursing Assistant H170690 165 HOURS**

HSC0003 – Basic Healthcare Worker (90 clock hours)

A1 - Health Science Core (90 hours)
This course is an introduction to the health profession. The content includes communication skills and their application to the professional medical environment, math skills, legal and ethical practice, employability skills, safe work practices, and integration of scientific principles based on anatomy and physiology, medical terminology, disease control, conditions of illness, and representative skills performed by health care workers.

HCP0121 – Nursing Aide and Orderly (Articulated) (75 clock hours)

B1 - Basic Nursing Skills (35 hours)
This course provides the student with the theory of basic nursing skills (unsterile) related to the basic needs of well and ill persons. This knowledge in conjunction with the companion clinical course in basic nursing will enable the student to perform as a nursing assistant. The nursing skills mastered in this course serve as the foundation upon which subsequent knowledge and skills are based. Students are expected to maintain a professional attitude at all times, to practice nursing in a safe and efficient manner, to be properly dressed and groomed at all times, to be punctual and dependable, to display honesty and courtesy, to use time efficiently, and to exhibit initiative.

Laboratory practice of nursing care skills are part of the theory course and must be completed prior to participating in the clinical area. Performance of nursing care is evaluated in the laboratory using a check sheet, which allows for a mark of satisfactory or unsatisfactory in the areas of knowledge of task performed, specified steps of the task, safety, organization, student's appearance, and attitude. A student is required to perform nursing care and procedures under the instructor’s supervision with 100% accuracy.

B2 - Nursing Assistant Clinical (Geriatric) (40 hours)
Students will practice basic nursing skills and apply geriatric nursing theoretical and practical concepts germane to the care of the aged in a long-term care facility. Upon completion of this course, the student will be able to provide care for the aged in the long-term care facility.

During this 40hrs clinical period, students learn to meet the basic needs of the patients providing basic patient care and diversional activities.
PLUMBING TECHNOLOGY

<table>
<thead>
<tr>
<th>Program Length</th>
<th>State Program Number</th>
<th>CIP Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>960 clock hours</td>
<td>I460513</td>
<td>0646050302</td>
</tr>
</tbody>
</table>

FLDOE State Curriculum Framework:
Link: • Plumbing Technology (8721600 / I460513)

Program Information: The program is 960 clock hours (approximately 12 months). This program is taught in English, in a traditional classroom/shop setting, and is offered during the day.

Program Costs (2013-14 academic year): Tuition fees are $2.67 per clock hour, for Florida residents, for classes scheduled from 7/1/13 to 6/30/14. Fees, books, supplies, and certification exam amounts are approximate and subject to slight changes.

<table>
<thead>
<tr>
<th>Florida Resident Tuition (960 clock hrs)</th>
<th>Fees</th>
<th>Estimated Tools/Books/Supplies</th>
<th>Certification Exams</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,563.20</td>
<td>32.00</td>
<td>813.80</td>
<td>65.00</td>
</tr>
</tbody>
</table>

Course Sequence: Courses must be successfully completed in order, according to school policies. Each course is offered at least once each year.

<table>
<thead>
<tr>
<th>OCP</th>
<th>Course #</th>
<th>Course Title</th>
<th>Length</th>
<th>SOC Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>BCV0508</td>
<td>Helper, Plumber, Pipefitter</td>
<td>360 Hours</td>
<td>47-3015</td>
</tr>
<tr>
<td>B</td>
<td>BCV0540</td>
<td>Residential Plumber</td>
<td>240 Hours</td>
<td>47-2152</td>
</tr>
<tr>
<td>C</td>
<td>BCV0562</td>
<td>Commercial Plumber</td>
<td>240 Hours</td>
<td>47-2152</td>
</tr>
<tr>
<td>D</td>
<td>BCV0592</td>
<td>Plumber</td>
<td>120 Hours</td>
<td>47-2152</td>
</tr>
</tbody>
</table>

Licensure Information: Students will take coursework and exams to receive OSHA and NCCER Core certifications. Students will also have the opportunity to take NCCER Plumbing 1 – 4 exams.

Career Information (SOC Codes):
http://www.onetonline.org/link/summary/47-3015.00
http://www.onetonline.org/link/summary/47-2152.00
Course Description:
The plumbing program is a combination of classroom instruction and shop experiences. The work in the shop closely simulates the job conditions of the Plumber. Most of the emphasis is on the working skills the student must master to become a Plumber. The student will utilize simulated work related modules while learning to install, maintain, and troubleshoot plumbing systems found in residential, commercial, and industrial areas.

Plumbing Technology prepares students to apply a full range of plumbing skills including blueprint reading, estimating, knowledge of plumbing codes, Threading, soldering, gluing, pressing of piping, residential plumbing, commercial plumbing, trim, repair techniques and more.

Job Opportunities: Potential employment in residential, commercial, and industrial settings.

To qualify for a certificate, the following courses must be satisfactorily completed:

**PLUMBING TECHNOLOGY** I460513 960 HOURS

**BCV0508 – Helper, Plumber, Pipefitter (360 clock hours)**

A1 - Orientation and Shop Safety (30 hours)
This course will be dealing with the safety issues in the shop environment and the history and concepts of the plumbing industry.

A2 - Plumbing Tools & Material (35 hours)
This course is an introduction to the selection and proper use of tools in the plumbing trade.

A3 - Technical Math & Science (30 hours)
This course will explain and put into practice the math and science necessary for the plumbing trade.

A4 - Blueprint and Specs (70 hours)
The student will learn the skills basic to blueprints, specifications, and codes of the pipe-trade industry.

A5 - Plumbing Codes (60 hours)
This course will explain the different plumbing codes and the importance to know both national and local codes.

A6 - Employability Skills (15 hours)
Employability/Communication Skills is presented via ErwinOnline with computer and Internet activities and videos. This course will assist all Erwin program students in the preparation for job placement. It will include job search methods, applying for a job, resume writing, interviewing skills and other information to assist in finding the right job for each person.

Students will produce a notebook/portfolio including documents to reference during any future job search. Interviewing skills are taught with emphasis on creating a professional image, making a positive first impression, dressing properly, and developing positive body language.

The responsibility for producing the resume and cover letter lies with the student. Documents should be “letter perfect.” These documents should represent your best effort. Computers are available in the HUB for document production.
A7 – Entrepreneurship (15 hours)
The entrepreneurship course starts with an overview of the advantages and disadvantages of being your own boss and the personal characteristics needed to be successful. The importance of small business to the U.S. economy is emphasized. Specific information is given on starting and running a small business.

A8 - Communication Skills (10 hours)
In this course the student will be introduced to the needs of industry to be able to communicate both verbally and written. The student will also have to use various written materials to obtain information needed for the job market.

A9 - Plumbing Layouts (95 hours)
This course is designed for the student to become familiar with different types of layouts in the plumbing trade

BCV0540 – Residential Plumber (240 clock hours)

B1 - Underground Rough Plumbing (90 hours)
This course is designed to teach the student proper installation methods of drainage and supply piping below the slab. It will also teach proper measuring and positioning techniques for vertical stacks and risers.

B2 - Above Ground Rough Plumbing (80 hours)
This course is designed to help the student to demonstrate and complete the task of above ground rough.

B3 - Trim Out Plumbing (70 hours)
This course is designed to help the student in understanding the installation of plumbing fixtures and putting this knowledge into practice.

BCV0562 – Commercial Plumber (240 clock hours)

C1 - Water Heating and Circulating Systems (45 hours)
This course is designed to help the student understand the proper installation and theories in water heating and circulation.

C2 - Interceptors and Grease Traps (30 hours)
This course is designed to help the student understand the proper installation and theories in Interceptors and grease traps in the plumbing trade.

C3 - Storm Drainage Systems (40 hours)
This course is designed to help the student learn the uses of a storm drainage system.

C4 - Blackflow and Cross Connection (60 hours)
This course is designed to help the student understand water backflow and cross connection and how it affects public health.

C5 - Commercial Waste and Water Distribution (65 hours)
This course is designed to help the student be successful in understanding the layout and installation of commercial waste and water distribution.
BCV0592 – Plumber (120 clock hours)

D1 - Natural and Propane Gas (60 hours)
This course is designed to help the student be successful in understanding the sizing and installation of natural and propane gas piping.

D2 - Services and Repair (60 hours)
This course is designed to help the student be successful in the service and repair side of the plumbing trade.
PRACTICAL NURSING

<table>
<thead>
<tr>
<th>Program Length</th>
<th>State Program Number</th>
<th>CIP Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1350 clock hours</td>
<td>H170605</td>
<td>0351390100</td>
</tr>
</tbody>
</table>

FLDOE State Curriculum Framework:
   Link: • Practical Nursing (8418300-H170605)

Program Information: The program is 1350 clock hours. This program is taught in English, in a traditional classroom setting, and offers day and evening cohorts. During clinical portions of the program, student hours and locations will vary.

Program Costs (2013-14 academic year): Tuition fees are $2.67 per clock hour, for Florida residents, for classes scheduled from 7/1/13 to 6/30/14. Fees, books, supplies, and certification exam amounts are approximate and subject to slight changes.

<table>
<thead>
<tr>
<th>Florida Resident Tuition (1350 clock hrs)</th>
<th>Fees</th>
<th>Estimated Tools/Books/Supplies</th>
<th>Certification Exams</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,604.50</td>
<td>169.50</td>
<td>1288.00</td>
<td>375.00</td>
</tr>
</tbody>
</table>

Finger Printing (not included)

Course Sequence: Courses must be successfully completed in the order shown below, according to school policies.

<table>
<thead>
<tr>
<th>OCP</th>
<th>Course #</th>
<th>Course Title</th>
<th>Length</th>
<th>SOC Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>HSC0003</td>
<td>Basic Healthcare Worker</td>
<td>90 hours</td>
<td>31-9099</td>
</tr>
<tr>
<td>B</td>
<td>HCP0121</td>
<td>Nurse Aide and Orderly (Articulated)</td>
<td>75 hours</td>
<td>31-1014</td>
</tr>
<tr>
<td>C</td>
<td>PRN0091</td>
<td>Practical Nurse 1</td>
<td>285 hours</td>
<td>29-2061</td>
</tr>
<tr>
<td>C</td>
<td>PRN0092</td>
<td>Practical Nurse 2</td>
<td>450 hours</td>
<td>29-2061</td>
</tr>
<tr>
<td>C</td>
<td>PRN0096</td>
<td>Practical Nurse 3</td>
<td>450 hours</td>
<td>29-2061</td>
</tr>
</tbody>
</table>

Licensure Information: Graduates are eligible and highly encouraged to take the NCLEX exam and become a licensed practical nurse (LPN) in the state of Florida.

Career Information (SOC Codes):
http://www.onetonline.org/link/summary/31-9099.00
http://www.onetonline.org/link/summary/31-1014.00
http://www.onetonline.org/link/summary/29-2061.00
**Course Description:**
The program is approved by the State Board of Nursing and designed to prepare a person for employment as a Licensed Practical Nurse. Instruction is designed to enable the individual to achieve instructional objectives in the following content areas: nursing skills, life span, nutrition, anatomy and physiology, obstetrical nursing, medical nursing, surgical nursing, pediatric nursing, geriatric nursing, personal and community health, drugs and medication.

Four classes are scheduled each year. Fifty percent of the training is spent in the clinical areas and include: maternal and newborn, pediatrics, medical and surgical, and experience in extended care facilities. Successful completion of the course prepares the student for the national licensing examination.

A physical examination, criminal background checks, random drug screening, immunizations, and medical insurance are required. Each student must purchase his/her uniforms and have a watch with a second hand. Prior to beginning the program, students must have a high school diploma or the equivalent. The daily hours for the clinical portion of the training will vary from the regular school schedule. Restrictions concerning applicants with arrest records may apply. Applicants for licensure who have been convicted of a felony and civil rights have not been restored are not eligible for licensure and are not eligible to take the licensing examination. When documentation of restoration of civil rights is received, the Board will consider the application for licensure. Please contact the Health Occupations Counselor for specific information.

Students completing the course may receive credits toward an A.S. degree at Hillsborough Community College or St. Petersburg Junior College. Please contact the college for additional information.

**Job Opportunities:** Clinics, congregate living facilities, home health care agencies, hospitals, private and governmental industry, private duty, nursing homes, physician office, school health nurse, and military.

To qualify for a certificate, the following courses must be satisfactorily completed:

**Practical Nursing**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>H170605</td>
<td>Practical Nursing</td>
<td>1350</td>
</tr>
</tbody>
</table>

**HSC0003 – Basic Healthcare Worker (90 clock hours)**

**A1 - Health Science Core (90 hours)**
This course is an introduction to the health profession. The content includes communication skills and their application to the professional medical environment, math skills, legal and ethical practice, employability skills, safe work practices, and integration of scientific principles based on anatomy and physiology, medical terminology, disease control, conditions of illness, and representative skills performed by health care workers.

**HCP0121 – Nursing Aide and Orderly (Articulated) (75 clock hours)**

**B1 - Basic Nursing Skills (35 hours)**
This course provides the student with the theory of basic nursing skills (unsterile) related to the basic needs of well and ill persons. This knowledge in conjunction with the companion clinical course in basic nursing will enable the student to perform as a nursing assistant.
The nursing skills mastered in this course serve as the foundation upon which subsequent knowledge and skills are based. Students are expected to maintain a professional attitude at all times, to practice nursing in a safe and efficient manner, to be properly dressed and groomed at all times, to be punctual and dependable, to display honesty and courtesy, to use time efficiently, and to exhibit initiative.

Laboratory practice of nursing care skills are part of the theory course and must be completed prior to participating in the clinical area. Performance of nursing care is evaluated in the laboratory using a check sheet, which allows for a mark of satisfactory or unsatisfactory in the areas of knowledge of task performed, specified steps of the task, safety, organization, student's appearance, and attitude. A student is required to perform nursing care and procedures under the instructor's supervision with 100% accuracy.

**B2 - Nursing Assistant Clinical (Geriatric) (40 hours)**

Students will practice basic nursing skills and apply geriatric nursing theoretical and practical concepts germane to the care of the aged in a long-term care facility. Upon completion of this course, the student will be able to provide care for the aged in the long-term care facility.

During this 40 hrs. clinical period, students learn to meet the basic needs of the patients providing basic patient care and diversional activities. Students will write a social history of a patient, recording their life story. The dialogue that develops between the student and patient enriches the experience of the student and creates an atmosphere of mutual respect.

**PRN0091 – Practical Nurse 1 (285 clock hours)**

**C1 - Vocational Adjustments I (9 hours)**

This course includes the history and development of practical nursing and the current trends in the field of nursing. It covers the role of the practical nurse on today’s health team as well as the social, ethical, and legal obligations of the practical nurse.

**C2 - Advanced Nursing Skills (92 hours)**

Advanced Nursing skills introduces the student practical nurse to the theory underlying basic sterile nursing skills. This theory, integrated with laboratory practice and clinical experience, allows the student to perform these skills competently and with understanding. All of these procedures must be satisfactorily performed in the clinical setting before graduation.

**C3 - Growth and Development (24 hours)**

Growth and development includes the basic theories of human behavior to include emotions and motives underlying the manifestations of behaviors of all people, development from conception to old age, and showing the biopsychosocial needs of the individual during each life stage.

**C4 - Anatomy and Physiology (50 hours)**

Anatomy and Physiology has been designed to provide general knowledge about the normal functions of the human body and the structures related to these functions. It is divided into seven units of study. Each unit will be taught separately, correlating each system’s contributions to the total function of the body as a unified whole.
C5 - Pharmacology (50 hours)
Pharmacology is an introduction to the therapeutic use of drugs, drug computations, techniques of drug handling and administration, and the legal implications of drug usage. A simulated drug pour in the laboratory is included.

C6 – Nutrition (24 hours)
Nutrition includes the role of proper nutrition in the maintenance of health and the values of nutrients as well as disease entities resulting from a lack of specific nutrients. It is a prerequisite to courses in the Medical/Surgical area where students formulate modified diets for patients.

C7 - Geriatric Theory (12 hours)
Upon completion of this course the student will demonstrate knowledge of the concepts of aging and the special needs of geriatric patients. Students will engage in an environmental scan of the aging population and its effects upon the health care delivery system. Social, emotional, physical, psychological, and economic issues will be addressed along with appropriate nursing care interventions.

C8 - Introduction to Medical Surgical Nursing (24 hours)
This course discusses the body’s immune mechanism and other responses to illness, current theories on cancer and its causes and latest treatment modalities, and nursing responsibilities when performing a patient data collection, and the care of surgical patients.

PRN0092 – Practical Nurse 2 (450 clock hours)

C9 –C10 Medical/Surgical Theory and Pharmacology I & II (195 hours)
This course employs the nursing process in data collection, planning, implementing, and evaluating the care of the patient with respiratory, circulatory, urinary, reproductive, endocrine, mental health, muscular/skeletal, skin/sensory, and digestive and nervous disorders and diseases

C11 - C12 - Medical/Surgical Clinical I A & B (255 hours)
Clinical experiences are utilized to implement theoretical knowledge and application of the nursing process in caring for the hospitalized patient. The clinical portion includes administration of medications to patients with direct supervision by the instructor.

PRN0096 – Practical Nurse 3 (450 clock hours)

C13 - Obstetrical Theory (24 hours)
This course provides theoretical knowledge of the care of mothers and newborns. It includes the nursing management of mothers during the antepartum, labor, delivery, and postpartum periods, and of normal newborns.

C14 - Pediatric Theory (30 hours)
This course will provide the student with theoretical knowledge of children and the treatment of illness. Health maintenance practices will be stressed.

C15 - Obstetrical Clinicals (30 hours)
Clinical experiences are utilized to implement theoretical knowledge and application of the nursing process in caring for the obstetrical patient and the newborn simulation is used.
C16 - Pediatric Clinicals (30 hours)
Clinical experiences are utilized to implement theoretical knowledge and application of the nursing process in caring for the pediatric patient. Simulation is used.

C17 - Community Health (10 hours)
This course emphasizes good health habits and how poor health habits can hinder the individual physically and emotionally; familiarizes the student with federal, national, state, and local health organizations; and relates the practical nurse’s role in prevention of disease and maintenance of health.

C18 - C19 - Medical/Surgical Clinical II A & B (320 hours)
Clinical experiences are utilized to implement theoretical knowledge and application of the nursing process in caring for the hospitalized patient. The clinical portion includes administration of medications to patients with direct supervision by the instructor.

C20 - Vocational Adjustments II (6 hours)
Obtaining and maintaining licensure, career opportunities, seeking and maintaining employment, trends in nursing and leadership skills are emphasized.
SOLAR PHOTOVOLTAIC

<table>
<thead>
<tr>
<th>Program Length</th>
<th>State Program Number</th>
<th>CIP Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>600 clock hours</td>
<td>HX600400</td>
<td>0615050502</td>
</tr>
</tbody>
</table>

FLDOE State Curriculum Framework:
  Link: • Solar Photovoltaic (X600400)

Program Information: The program is 600 clock hours. This program is taught in English, in a traditional classroom setting, and offered during the day.

Program Costs (2013-14 academic year): Tuition fees are $2.67 per clock hour, for Florida residents, for classes scheduled from 7/1/13 to 6/30/14. Fees, books, supplies, and certification exam amounts are approximate and subject to slight changes.

<table>
<thead>
<tr>
<th>Florida Resident Tuition (160 clock hrs)</th>
<th>Fees</th>
<th>Estimated Tools/Books/Supplies</th>
<th>Certification Exams</th>
</tr>
</thead>
<tbody>
<tr>
<td>1602.00</td>
<td>32.00</td>
<td>634.00</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Course Sequence: Courses must be successfully completed in the order shown below, according to school policies.

<table>
<thead>
<tr>
<th>OCP</th>
<th>Course #</th>
<th>Course Title</th>
<th>Length</th>
<th>SOC Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>EEV0205</td>
<td>Solar Photovoltaic Design Installation and Maintenance Helper</td>
<td>150 hours</td>
<td>49-9099</td>
</tr>
<tr>
<td>B</td>
<td>EEV0206</td>
<td>Solar Photovoltaic Design, Installation and Maintenance Technician</td>
<td>450 hours</td>
<td>47-2231</td>
</tr>
</tbody>
</table>

Licensure Information: Graduates are eligible and highly encouraged to take the NABCEP Solar PV Installer industry certification exam.

Career Information (SOC Codes):
http://www.onetonline.org/link/summary/31-9099.00
http://www.onetonline.org/link/summary/31-1014.00
http://www.onetonline.org/link/summary/29-2061.00
Course Description:
The Solar Photo Voltaic industry is a rapidly growing field that is expected to help reduce human dependence on fossil fuels. The need for solar photovoltaic installers has increased and is projected to grow with increasing demands for solar installations. This Course covers specific information, equipment, and installation techniques that are valuable to PV system installers. The curriculum is designed to assist trainees in obtaining the North American Board of Certified Energy Practitioners (NABCEP) Entry Level Certification.

To qualify for a certificate, the following courses must be satisfactorily completed:

**Solar Photovoltaic**  X600400  600 HOURS

**EEV0205 – Solar Photovoltaic Design, Installation & Maintenance Helper (150 hours)**

**A1 - Information Technology & Communication (25 hours)**
Employ information technology tools to expedite workflow. Students apply technology, reading, writing, and thinking skills as they relate to the solar business environment. Become familiar with file management, file naming conventions, file formatting tools, various operating systems, software applications, and will get hand-on experience troubleshooting hardware peripherals. Employ collaborative applications to facilitate group work.

**A2 - Mathematics Knowledge & Skills (30 hours)**
This course is divided into two sections. The basic math class for students needing a review in fractions, decimals, and percentages and the advanced math class for students needing instruction in algebra, geometry, and trigonometry. The skills mastered will have direct, practical application to the Solar PV program.

**A3 - Employability Skills (20 hours)**
Employability/Communication Skills is presented via Erwin Online with computer and Internet activities and videos. This course will assist all Erwin program students in the preparation for job placement. It will include job search methods, applying for a job, resume writing, interviewing skills and other information to assist in finding the right job for each person. Students will produce a notebook/portfolio including documents to reference during any future job search. Interviewing skills are taught with emphasis on creating a professional image, making a positive first impression, dressing properly, and developing positive body language.

**A4 - Entrepreneurship Skills (20 hours)**
Define entrepreneurship and describe entrepreneurship opportunities as a career planning option. Explain key solar policy drivers, list customer segments and explain industry trends. Describe the PV business value chain, business models and review licensing, and certification credentials. Assess PV industry priorities and ethical issues. Identify various solar incentives and evaluate their effect on the industry. Understand financial transactions and calculate interest rate yields and returns on solar on investments. Perform a residential cost/value analysis.

**A5 - PV Markets & Applications (30 hours)**
This course provides an overview of the many arguments that make the Case for Renewable Energy. In this this course students discusses the effects of Greenhouse gas emissions and its role in climate change. The concept of carbon footprints and the benefits of conserving natural resources and energy efficiency will be discussed while the student develops an overview of various renewable energies. Students will learn about PV technologies, contributions to their...
development in historic context and identify common types of PV systems. Existing kinds of environmental pollution will be identified together with the advantages and disadvantages of PV systems compared to traditional electricity generation sources.

**A6 - Safety Basic (25 hours)**
Understand the importance of health and safety requires as it applies to the workplace in the general construction and solar industry. Identify personal and public safety hazards; implement appropriate codes and standards concerning the installation and operation of PV systems and equipment. Demonstrate proper use of tools and accepted practices; identify hazardous materials with PV installations. An emergency response plan explaining procedures in a workplace accident will be created by students.


**B1 - Electrical Basics (75 hours)**
Read, interpret and draw basic blueprints, job specifications and relate to all applicable codes. Understand the meaning of basic electrical parameters including electrical charge, current, voltage, power and resistance, and relate these parameters to their hydraulic analogies. Demonstrate the ability to apply Ohm’s Law. Describe the function and purpose of common electrical system components. Identify basic electrical test equipment and its purpose.

**B2 - Solar Energy Fundamentals (50 hours)**
Define basic solar energy related terminology and diagram the solar window by predicting the sun’s path for given times dates and locations. Differentiate between solar irradiance (power), solar irradiation (energy) and understand the meaning of the terms peak sun, peak sun hours, and insolation. The student will use computer software and solar surveying equipment to quantify realistic site specific energy potential, predict the effects of shading on performance outcomes and identify constrains restricted by local and state authorities.

**B3 - PV Module Fundamentals (50 hours)**
Explain the photovoltaic effect. Distinguish between PV cells, modules, panels and arrays. Identify key electrical output parameters for PV modules using manufacturers’ literature and read, develop and understand current-voltage (I-V) curves. Understand the effects of varying incident solar irradiance and cell temperature. Illustrate the effects of connecting similar and dissimilar PV modules in series and in parallel on electrical output and diagram the resulting I-V curves. Define various performance rating and measurement conditions for PV modules and arrays. Describe various solar cells and their manufacturing processes; calculate efficiencies and power output per unit.

**B4 - System Components (50 hours)**
Understand the basic types of PV systems, their major subsystems and Components and the electrical and mechanical BOS components required. Describe the purpose and principles of operation for major PV system components, including PV modules and arrays, inverters and chargers, charge controllers, energy storage and other sources.
B5 - PV System Sizing Principles (50 hours)
Differentiate between the approaches and methodologies for sizing different types of PV systems. Calculate, using simplified calculations and software tools, critical design parameter, system size, configure and determine system components locations. Configure site specific layouts using Information Technologies and Computer Aided Design Software. Estimate time, materials and labor required for installation and identify critical data to apply for permitting with Authorities having Jurisdiction.

B6 - PV System Electrical Design (75 hours)
Draw and prepare simple one-line electrical diagrams for various PV systems showing all BOS components locations. Design and Install PV modules configured in series and parallel. Identify basic properties of electrical conductors and understand how conditions of use, affect their ampacity, resistance and corresponding overcurrent protection requirements. Understand the importance of nameplate specifications on PV modules, inverters and other equipment on determining allowable system limits. Select and size conductors, overcurrent protection devices, wiring methods and establish appropriate and safe interfaces with other equipment and electrical systems. Identify the labeling requirements for electrical equipment in PV systems and understand the basic principles of PV system grounding. Apply Ohm’s Law and conductor properties to calculate voltage drop for simple PV source circuits. Identify the requirements for plan review, permitting, inspections, construction contracts and other matters associated with approvals and code-compliance for PV systems. Demonstrate knowledge of key articles of the National Electrical Code.

B7 - PV System Mechanical Design (75 hours)
Identify the common ways PV arrays are mechanically secured and installed on the ground, to building rooftops or other structures. Compare and contrast the features and benefits of different PV array mounting systems. Identify desirable material properties for weather sealing, UV, sunlight and corrosion resistance, wet/outdoor approvals and other service ratings appropriate for the intended application, environment and conditions of use. Assure structural integrity and suitability of collector sites to install arrays affixed to different types of roof. Describe and perform basic calculations of mechanical loads experienced by PV modules according to ASCE 7-10 Minimum Design Loads for Buildings and other Structures. Review and recognize the importance of PV equipment manufacturers’ instructions with regard to mounting and installation procedures, the skills and competencies required of installers, and the implications on product safety, performance, code-compliance and warranties.

B8 - Performance Analysis, Maintenance & Troubleshooting (50 hours)
Understand the safety requirements for operating and maintaining different types of PV systems and related equipment. Identify and describe the use and meaning of typical performance parameters monitored in PV systems. Describe typical maintenance requirements for PV arrays and other system components, including inverters and batteries. Identify the most common types of reliability failures in PV systems. Review component manufacturers' instructions and understand basic troubleshooting principles and progression, including recognizing a problem, observing the symptoms, diagnosing the cause and taking corrective actions. Demonstrate the functionality, start-up and shut-down procedures and over all operation of the system.
SURGICAL TECHNOLOGY

<table>
<thead>
<tr>
<th>Program Length</th>
<th>State Program Number</th>
<th>CIP Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1330 clock hours</td>
<td>H170211</td>
<td>0351090905</td>
</tr>
</tbody>
</table>

FLDOE State Curriculum Framework:
   Link: • Surgical Technology (H170211)

Program Information: The program is 1330 clock hours. This program is taught in English, in a traditional classroom setting, during the day. During clinical portions of the program, student hours and locations of instruction will vary.

Program Costs (2013-14 academic year): Tuition fees are $2.67 per clock hour, for Florida residents, for classes scheduled from 7/1/13 to 6/30/14. Fees, books, supplies, and certification exam amounts are approximate and subject to slight changes.

<table>
<thead>
<tr>
<th>Florida Resident Tuition (1330 clock hrs)</th>
<th>Fees</th>
<th>Estimated Tools/Books/Supplies</th>
<th>Certification Exams</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,551.10</td>
<td>159.50</td>
<td>647.40</td>
<td>237.00</td>
</tr>
</tbody>
</table>

Course Sequence: Courses must be successfully completed in the order shown below, according to school policies.

<table>
<thead>
<tr>
<th>OCP</th>
<th>Course #</th>
<th>Course Title</th>
<th>Length</th>
<th>SOC Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>HSC0003</td>
<td>Basic Healthcare Worker</td>
<td>90 hours</td>
<td>31-9099</td>
</tr>
<tr>
<td>B</td>
<td>STS0015</td>
<td>Central Supply Technician</td>
<td>210 hours</td>
<td>31-9099</td>
</tr>
<tr>
<td>C</td>
<td>STS0010</td>
<td>Surgical Technologist 1</td>
<td>343 hours</td>
<td>29-2055</td>
</tr>
<tr>
<td>C</td>
<td>STS0011</td>
<td>Surgical Technologist 2</td>
<td>343 hours</td>
<td>29-2055</td>
</tr>
<tr>
<td>C</td>
<td>STS0012</td>
<td>Surgical Technologist 3</td>
<td>344 hours</td>
<td>29-2055</td>
</tr>
</tbody>
</table>

Licensure Information: Graduates will take the CST certification exam prior to graduation. Students do not have to receive a passing score on the CST certification exam in order to graduate from the program and receive a vocational certificate.

Career Information (SOC Codes):
http://www.onetonline.org/link/summary/31-9099.00
http://www.onetonline.org/link/summary/29-2055.00
Program Entrance Requirements: A criminal background check, drug screening and a physical examination are required prior to acceptance in the course. Students must purchase their own uniforms. Prior to beginning the program, students must have a high school diploma or the equivalent. The daily hours for the clinical portion of the training will vary from the regular school schedule. You may call the school for specifics. Restrictions concerning applicants with arrest records and treatment of emotional illness or substance abuse may apply. Please contact the Health Occupations Counselor for specific information.

Program Accreditation: The Erwin Technical Center Surgical Technology program is accredited by the Accrediting Bureau of Health Education Schools, 777 Leesburg Pike, Suite 314 – N, Falls Church, VA 22043. Phone: (703) 917-9503.

Job Opportunities: The Surgical Technology graduates from this program are hired as technologists in the hospitals as team members of the operating room and as assistants to the surgeons. Also, they are hired as central service instrument technologists. Surgeons hire them as private assistants in the operating room. Ambulatory outpatient centers and transplant units are also areas of employment.

Course Description:
This program is designed to prepare a person to function as a member of the surgical team under the supervision and responsibility of the operating room supervisor. Surgical Technologists function as members of the surgical team by preparing supplies and equipment for use in surgery and by assisting the surgeon and nurses with the use of supplies/equipment at the operating table. Practical experience, which requires an earlier reporting time than the classroom portion of school, is provided in local hospitals. Graduates are eligible to take the national certification examination. The program is accredited by ABHES accrediting agency.

The Surgical Technology program at Erwin Technical Center has two classrooms and a well-equipped surgical laboratory, with scrub room. The classrooms have space for more than 40 students. The surgical laboratory is equipped with a working autoclave, operating room beds, back tables, mayo stands and ring stands as well as scrub sinks. We carry all the necessary peel pack items to accommodate and accompany the various surgical procedures we teach and practice. Our laboratory is a direct replica of the operating rooms in which we train, including recessed cabinetry, instrument storage space, and operating room lights mounted above the sterile field. Students benefit from our real world set-up and replica of the hospital sites where we complete the externship portion of the program.

Completion Credential: To qualify for graduation and receipt of a Surgical Technology vocational certificate, the following courses must be satisfactorily completed:

SURGICAL TECHNOLOGY H170211 1330 HOURS

HSC0003 – Basic Healthcare Worker (90 clock hours)

A - Health Science Core (90 hours)
This course has been designed to introduce the Allied Health student to the health care profession and satisfies prerequisite competencies for all Health Occupation Programs in the state of Florida. The content includes communication skills as it applies to the professional medical environment, learning and study strategies, math and computational skills, legal and ethical practices, employability skills, safety and security procedures, medical terminology,
scientific principles based on fundamental body structure and function, infection control, HIV/Bloodborne Pathogen awareness, CPR, First Aid, wellness and disease concepts, computer literacy, and representative skills performed by health care workers, such as vital signs and infection control techniques.

**STS0015 – Central Supply Technician (210 clock hours)**

**B1 - Anatomy & Physiology I (80 hours)**
This course has been designed to provide general knowledge about the healthy functions of the human body and the structures related to these functions. It is divided into six units of study. Each unit will be taught separately, correlating each system’s contributions to the total function of the body, as a synergistic and unified whole. Instruction will also include anatomical positions, planes of the body, systems of the body and their inter-relationships, body chemistry, and introduction to physics.

**B2 - Anatomy & Physiology II (75 hours)**
This course has been designed to provide general knowledge about the healthy functions of the human body and the structures related to these functions. It is divided into six units of study. Each unit will be taught separately, correlating each system’s contributions to the total function of the body, as a synergistic and unified whole. Instruction will also include anatomical positions, planes of the body, systems of the body and their inter-relationships, body chemistry, and introduction to physics.

**B3 - Introduction to Surgical Technology (35 hours)**
The student will be introduced to the school's program, philosophy, and requirements. Interpersonal relationships, OR techniques, electrical safety, medical terminology and weights and measures are stressed.

An understanding and appreciation for the role of a surgical technologist in the operating room, delivery room, emergency room, and related areas will be obtained as well as an orientation to the environment of these areas.

The history of surgical practice and the ethical, moral, and legal responsibilities of the employer and employee are discussed. Laboratory experience is an integral part of this course.

**B4 – Microbiology (20 hours)**
Principles of pathology and the reaction of injury and pathogenesis of disease are discussed. Basic concepts of microbiology are studied. Micro-organisms as agents of disease and host-parasite relationships are studied as they apply to the practice of surgery. Maintenance of health and prevention of disease are emphasized.

**STS0010 – Surgical Technologist 1 (343 clock hours)**

**C1 - Operating Room Technique (50 hours)**
This unit is designed to help the Surgical Technology student to understand and use skills in the operating room, including principles of aseptic technique correct procedure for scrubbing, gowning and gloving; draping, handling of specimens; care and counting of sponges and instruments. Also, the student will obtain experience in handling drains and dressing; duties of scrub and circulator; surgical preps, positions, incisions and needles and suture. Clinical practice is coordinated with didactic content.
C2 - Operating Room Technique Lab I (100 hours)
This unit is designed to help the Surgical Technology student to understand and use skills in the operating room, including principles of aseptic technique, correct procedure for scrubbing, gowning and gloving; draping, handling of specimens; care and counting of sponges and instruments. Also, the student will obtain experience in handling drains and dressing; duties of scrub and circulator; surgical preps, positions, incisions and needles and suture. Clinical practice is coordinated with didactic content.

C3 - Operating Room Technique Lab II (45 hours)
This unit is a continuation of Operating Room Technique Lab I to help the Surgical Technology student understand and use skills in the operating room, including principles of aseptic technique, correct procedure for scrubbing, gowning and gloving; draping, handling of specimens; care and counting of sponges and instruments. Also, the student will obtain experience in handling drains and dressing; duties of scrub and circulator; surgical preps, positions, incisions and needles and suture. Clinical practice is coordinated with didactic content.

C4 - Safe Patient Care (40 hours)
The student will become aware of the surgery patient's total needs during surgery: physical, social, psychological, and spiritual. This course includes the study of peri-operative care. Routine laboratory and x-ray reports are covered and the student learns to interpret these reports. Pharmacology and anesthesia are stressed with emphasis on side effects and drug reactions and emergency measures used to counteract these reactions. The individuality and uniqueness of each patient is discussed. Clinical practice is coordinated with didactic content.

C5 - Safe Patient Care Lab (40 hours)
This student will become aware of the surgery patient's total needs during surgery: physical, social, psychological, and spiritual. This course includes the study of peri-operative care. Routine laboratory and x-ray reports are covered and the student learns to interpret these reports. Pharmacology and anesthesia are stressed with emphasis on side effects and drug reactions and emergency measures used to counteract these reactions. The individuality and uniqueness of each patient is discussed. Clinical practice is coordinated with didactic content. Students must pass lab performance checkouts for Scrub Tech Role and Circulating Role in order to remain in the program and proceed to Course C6. If both lab performance checkouts are not passed, the student will be withdrawn from the program. The student may apply to re-enter the next time Course C1 is offered and space is available.

C6 - Fundamentals of Surgery I (68 hours)
Information is obtained on operative procedures, the different types of incisions, special equipment, instruments, and supplies. The history, diagnosis and complications of each surgical procedure are also covered. This course is designed to provide the student with necessary skills needed to function under supervision with minimum level of competence in surgery and related areas; i.e., lasers, endoscopy, and robotics.

STS0011 – Surgical Technologist 2 (343 clock hours)

C7 - Fundamentals of Surgery II (85 hours)
Information is obtained on operative procedures, the different types of incisions, special equipment, instruments, and supplies. The history, diagnosis and complications of each surgical procedure are also covered. This course is designed to provide the student with necessary skills needed to function under supervision with minimum level of competence in
surgery and related areas in the intermediate phase.

**C8 – C9 General Surgery I & II (172 hours)**
During the first phase of clinical practice the students must demonstrate a safe level of practice and knowledge. It is not necessary for the student to be competent in the more difficult procedures but should be able to perform the basic skills that were learned in the pre-clinical area.

**C10 - General Surgery III (86 hours)**
As the student advances into more difficult procedures, better organization and control should be demonstrated. At this point in the student's practice there should be no breaks in technique that are not corrected. Problem solving should be mastered and the student should show steady progress.

**STS0012 – Surgical Technologist 3 (344 clock hours)**

**C11 - C12 - C13 Specialty Surgery I, II, III (344 hours)**
The student should demonstrate the ability to take over the procedure. Knowledge of supplies and instruments needed for the variety of surgeries will be apparent. The more complicated procedures are mastered, there should be no hesitation ongoing in on a procedure, checking for the correct instrument and supplies and carrying through with the procedure. A basic knowledge of the more complex surgeries is demonstrated. In addition to all other program requirements, students are required to have completed a minimum of 120 documented scrubbed cases in order to graduate from the program. A minimum of 65% (90 cases) must be scrubbed in the solo - 1st scrub role, and up to 35% (30 cases) may be scrubbed with assistance from the preceptor.
WELDING
(Appplied Welding Technologies)

<table>
<thead>
<tr>
<th>Program Length</th>
<th>State Program Number</th>
<th>CIP Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1170 clock hours</td>
<td>I480500</td>
<td>0648050802</td>
</tr>
</tbody>
</table>

FLDOE State Curriculum Framework:
  Link: • Applied Welding Technologies (8754500 / I480500)

Program Information: The program is 1170 clock hours (approximately 13 months). This program is taught in English, in a traditional classroom/shop setting, and is offered during the day.

Program Costs (2013-14 academic year): Tuition fees are $2.67 per clock hour, for Florida residents, for classes scheduled from 7/1/13 to 6/30/14. Fees, books, supplies, and certification exam amounts are approximate and subject to slight changes.

<table>
<thead>
<tr>
<th>Florida Resident Tuition (1170 clock hrs)</th>
<th>Fees</th>
<th>Estimated Tools/Books/Supplies</th>
<th>Certification Exams</th>
</tr>
</thead>
<tbody>
<tr>
<td>3123.90</td>
<td>44.00</td>
<td>598.10</td>
<td>65.00</td>
</tr>
</tbody>
</table>

Course Sequence: Courses must be successfully completed, according to school policies, in the following order. Each course is offered at least once per academic year.

<table>
<thead>
<tr>
<th>OCP</th>
<th>Course #</th>
<th>Course Title</th>
<th>Length</th>
<th>SOC Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>PMT0011</td>
<td>Welder Helper</td>
<td>250 hrs</td>
<td>51-9198</td>
</tr>
<tr>
<td>B</td>
<td>PMT0012</td>
<td>Welder, Shielded Metal Arc</td>
<td>250 hrs</td>
<td>51-4121</td>
</tr>
<tr>
<td>C</td>
<td>PMT0013</td>
<td>Welder, Gas-Metal Arc</td>
<td>125 hrs</td>
<td>51-4121</td>
</tr>
<tr>
<td>D</td>
<td>PMT0014</td>
<td>Welder, Flux Cored Arc</td>
<td>100 hrs</td>
<td>51-4121</td>
</tr>
<tr>
<td>E</td>
<td>PMT0015</td>
<td>Welder, Gas-Tungsten Arc</td>
<td>170 hrs</td>
<td>51-4121</td>
</tr>
<tr>
<td>F</td>
<td>PMT0016</td>
<td>Welder, Pipe</td>
<td>270 hrs</td>
<td>51-4121</td>
</tr>
</tbody>
</table>

Licensure Information: Students will take exams to receive the following certifications: OSHA, and NCCER Core & Welding Level 1.

Career Information (SOC Codes):
http://www.onetonline.org/link/summary/51-9198.00
http://www.onetonline.org/link/summary/51-4121.00
Course Descriptions:
The objective of the Applied Welding Technologies course is to develop the manipulative skills and to learn the technical knowledge required to pass entry-level employment qualifications or certification tests.

The course includes instruction and practice in Oxy-Acetylene, Plasma Arc and Carbon Arc cutting, washing and gouging, manual Shielded Metal Arc, Gas Metal Arc and Gas Tungsten Arc welding processes.

Job Opportunities: Fabrication shops, power plants, plant maintenance, shipyards, trailer shops and building construction.

To qualify for a diploma, the following courses must be satisfactorily completed:

Applied Welding Technologies   I480500   1170 hours

PMT0011 – Welder Helper (250 clock hours)

A1 - Apply Basic Shop Skills (15 hours)
This course provides the student with introductory knowledge in safety, welding terminology, communication skills, material handling and the use of power tools and equipment associated with the welding industry.

A2 - Apply Basic Oxyfuel Gas & Basic Sciences (15 hours)
This course provides the student with the basic knowledge and skills to have an understanding of how to safely set up and operate the oxy-fuel equipment and create an understanding of the basic sciences involved with use of the oxy-fuel welding and cutting process.

A3 - Apply Basic Shielded Metal Arc Welding (135 hours)
This course provides the students with the basic skills and understanding of how to set up and operate the equipment used in the shielded metal arc welding process (SMAW/ stick welding). The students will learn base metal preparation, joint fit-up and alignment necessary to perform surfacing and fillet welds in the flat, horizontal and vertical welding positions using E6010, E7018 welding electrodes. This course also provides the basic understanding of weld quality and introduces the student to both destructive and non-destructive forms of examination of weldments.

A4 - Employability & Computer Skills (15 hours)
Employment information is presented via computer and Internet activities, textbook work and activities, videos, and short lectures to meet the state objectives for Workplace Readiness. Students will maintain a portfolio of their completed work, including a personal and professional resume and cover letter.

The responsibility for producing the resume and cover letter lies with the student. Documents should be “letter perfect.” High-quality resume paper, (available in the bookstore at a nominal cost), is required for the completed cover letter and resume. These documents should represent your best effort. Computers are available in The Learning Center, Room 160, and the “The Hub” for document production. Students must schedule time with the Learning Center staff in order to use the computers. An album of examples is available for student use.
Interviewing skills are taught with emphasis on creating a professional image, making a positive first impression, dressing properly, and developing positive body language. Students will practice answering general interview questions and asking good questions of the employer as well as preparing responses to targeted selection questions. Throughout the employability class, emphasis is placed on the importance of good interpersonal skills, ethics, professional attitude, and problem-solving ability.

**A5 – Construction Math (30 hours)**
This course reviews basic mathematical functions such as adding, subtracting, multiplying and dividing whole numbers, fractions, decimals and fractions and explains their application in the construction trades using practical examples. The class will also explain how to use and read various length measurement tools including standard and metric rulers and tape measures, and the architects and engineers scales.

**A6 – Introduction to Construction Drawings (15 hours)**
This course provides the student with basic interpretation skills of drawings, components, symbols and terminology associated with construction drawings you may encounter in the construction trades.

**A7 - Intermediate Oxyfuel Cutting & Welding (15 hours)**
This course provides the student with an intermediate level of understanding and ability to perform tasks with the manual hand torch and set up and safely operate a track torch used in the oxy-fuel welding and cutting process. The student will perform straight cuts, bevel cuts, wash burning and piercing techniques used in the fabrication/ manufacturing and repair trades. Students will learn how to use a torch for preheating and postheating and how using these techniques preserve the integrity of a weldment.

**A8 – Entrepreneurship (10 hours)**
The entrepreneurship course starts with an overview of the advantages and disadvantages of being your own boss and the personal characteristics needed to be successful. The importance of small business to the U. S. economy is emphasized. Specific information is given on starting and running a small business.

**PMT0012 – Welder, Shielded Metal Arc (250 clock hours)**

**B1 - Apply Intermediate Shielded Metal Arc (160 hours)**
This course provides the student with basic skills and understanding of the shielded metal arc welding process (SMAW/ Stick) using E6010, E7018 welding electrodes performing surfacing, fillet and groove welds in the flat, horizontal, vertical and overhead welding positions. This course continues to provide the basic understanding of weld quality using visual inspection and destructive testing procedures.

**B2 - Demonstrate Arc Cutting Principles and Practices (25 hours)**
This course provides the student with basic skills in cutting metal with Air Carbon Arc and plasma arc cutting processes.

**B3 - Apply Advanced Shielded Metal Arc (65 hours)**
This course provides the student with basic experience and tests the students understanding with shielded metal arc welding process using the guided bend test machine to test groove welds with backing preformed in all positions using the E7018 1/8” welding electrodes.
PMT0013 – Welder, Gas-Metal Arc (125 clock hours)

C1 - Apply Basic Gas Metal Arc Welding (GMAW) Skills (MIG) (35 hours)
This course provides the student with the basic skills and understanding of the set-up and safe use of GMAW (MIG) equipment on mild steel using a solid wire and shielding gasses to perform surfacing and fillet welds in the flat, horizontal, vertical and overhead welding positions. This course continues to provide the basic understanding of weld quality using visual inspection.

C2 - Apply Intermediate Gas Metal Arc Welding (MIG) (90 hours)
This course continues to provide the student with the basic skills and understanding of the set-up and safe use of GMAW (MIG) equipment on mild steel and aluminum using a solid wire and shielding gasses to perform surfacing, fillet and groove welds in the flat, horizontal, vertical and overhead welding positions. This course also continues to provide the basic understanding of weld quality using visual inspection.

PMT0014 – Welder, Flux Cored Arc (100 clock hours)

D1 - Flux Cored Arc Welding I (50 hours)
This course provides the student with the basic skills and understanding of the set-up and safe use of Flux Core Arc Welding (FCAW) equipment on mild steel using a tubular wire with flux core wire and shielding gasses to perform surfacing and fillet welds in the flat, horizontal, vertical and overhead welding positions. This course continues to provide the basic understanding of weld quality using visual inspection.

D2 - Flux Cored Arc Welding II (50 hours)
This course provides the student with the basic skills, understanding and experience of the Flux Core Arc Welding (FCAW) equipment and process to perform groove welds without backing in all positions on mild steel using a tubular wire with flux core wire and shielding gasses.

PMT0015 – Welder, Gas-Tungsten Arc (175 clock hours)

E1 - Basic Gas Tungsten Arc Welding (GTAW) Skills (TIG) (75 hours)
This course explains the safe use of the GTAW (TIG) equipment, filler metals and gasses associated with the process and it provides the student with the basic skills and understanding of gas tungsten arc welding on mild steel in all positions.

E2 - Intermediate Gas Tungsten Arc Welding Skills (GTAW), (TIG) (100 hours)
This course explains the safe use of the GTAW (TIG) equipment, filler metals and gasses associated with the process and it provides the student with the basic skills and understanding of gas tungsten arc welding on stainless steel in all positions.

PMT0016 – Welder, Pipe (250 clock hours)

F1 Advanced Gas Tungsten Arc Welding (175 hours)
This course explains the safe use of the GTAW (TIG) equipment, filler metals and gasses associated with the process and it provides the student with the basic skills and understanding of gas tungsten arc welding on aluminum in all positions.
F2- Shielded Metal Arc Welding Pipe I (50 hours)
This course continues to develop the SMAW skills learned in Apply Basic- Advanced Shielded Metal Arc welding. Successful completion of the mentioned courses is required to advance to this stage. This course provides the students with the basic skills and understanding of how to safely use a band saw and grinder to prepare the plates and pipe for proper joint fit-up and alignment necessary to perform surfacing and groove welds without backing in the flat, horizontal, vertical and overhead welding positions using E6010 1/8” and E7018 3/32” welding electrodes. This course continues to provide the basic understanding of weld quality using non-destructive forms of examination of weldments.

F3 - Shielded Metal Arc Welding Pipe II (45 hours)
This course continues to develop the SMAW skills learned in Shielded Metal Arc Welding Pipe I. Successful completion of the mentioned courses is required to advance to this stage. This course provide the students with the basic skills and understanding of how to safely set up, maintain, operate and change the tooling on a pipe beveling machine while continuing to provide the students with the basic skills and understanding of how to safely use a band saw and grinder to prepare the pipe for proper joint fit-up and alignment necessary to perform groove welds without backing in the 2G (fixed) 5G (fixed) and 6G (fixed) welding positions using E6010 1/8” and E7018 3/32” welding electrodes. This course continues to provide the basic understanding of weld quality using non-destructive forms of examination of weldments.
ERWIN FACULTY AND STAFF

Administration

Rich, James
Principal
Master’s Degree
Nova Southeastern University
Florida

Brooks, Donna
Assistant Principal
Doctorate Degree
Argosy University
Florida

Suarez, David
Assistant Principal
Educational Specialist
Nova Southeastern University
Florida

Full-Time Faculty

Allen, Tamara
Medical Billing and Coding
Associate’s Degree
Hillsborough Community College
Florida

Antala, Kirsten
Surgical Technology
Associate’s Degree
Hillsborough Community College
Florida

Baird, Yvonne
Practical Nursing
Master’s Degree (MSN), RN
University of South Florida
Florida

Jeff Barnum
Wireless Telecommunications
Master’s Degree
Ball State University
Indiana

Brocks, Sigurd
Solar Photovoltaic
Bachelor’s Degree, Architecture
University of Applied Science Dortmund
Germany

Ciofalo, Julie
Business Technology
Master’s Degree
Nova Southeastern University
Florida

Coet, Henry III
Electroneurodiagnostic Technologist
Vocational Certificate
School District Hillsborough County
Florida

Darrach, Frances
Business Technology
Master’s Degree
University of South Florida
Florida
<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Degree</th>
<th>Institution</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Davis, Margaret</td>
<td>Business Technology</td>
<td>Master’s Degree</td>
<td>Nova Southeastern University</td>
<td>Florida</td>
</tr>
<tr>
<td>Diaz, Georgene</td>
<td>Program Advisor – Financial Aid</td>
<td>Master’s Degree</td>
<td>University of South Florida</td>
<td>Florida</td>
</tr>
<tr>
<td>Dickson, Linda</td>
<td>Medical Laboratory Technology</td>
<td>Master’s Degree</td>
<td>University of South Florida</td>
<td>Florida</td>
</tr>
<tr>
<td>DiRisio, Mary</td>
<td>Cosmetology</td>
<td>Vocational Certificate</td>
<td>School District Hillsborough County</td>
<td>Florida</td>
</tr>
<tr>
<td>Eckermann, Janet</td>
<td>Practical Nursing</td>
<td>Bachelor’s Degree (BSN), RN</td>
<td>Bishop Clarkson College of Nursing</td>
<td>Nebraska</td>
</tr>
<tr>
<td>Ehrman, Jonathan</td>
<td>A/C, Refrigeration &amp; Heating</td>
<td>Vocational Certificate</td>
<td>Erwin Technical Center</td>
<td>Florida</td>
</tr>
<tr>
<td>Feir, Maria</td>
<td>Nursing Assisting</td>
<td>Bachelor's Degree, RN</td>
<td>Santo Tomas University</td>
<td>Phillipinas</td>
</tr>
<tr>
<td>Fritcher, Tandy</td>
<td>Medical Assisting</td>
<td>Vocational Certificate</td>
<td>School District Hillsborough County</td>
<td>Florida</td>
</tr>
<tr>
<td>Godwin, Cynthia</td>
<td>Practical Nursing</td>
<td>Bachelor’s Degree (BSN), RN</td>
<td>University of Phoenix</td>
<td>Arizona</td>
</tr>
<tr>
<td>Gonzalez, Raul</td>
<td>A/C, Refrigeration &amp; Heating</td>
<td>Vocational Certificate</td>
<td>Erwin Technical Center</td>
<td>Florida</td>
</tr>
<tr>
<td>Gray, Mary</td>
<td>GED</td>
<td>Bachelor’s Degree</td>
<td>University of Florida</td>
<td>Florida</td>
</tr>
<tr>
<td>Gulledge, Hervey</td>
<td>ESOL</td>
<td>Bachelor’s Degree</td>
<td>University of West Florida</td>
<td>Florida</td>
</tr>
<tr>
<td>Harrison, Karen</td>
<td>Massage Therapy</td>
<td>Associate’s Degree</td>
<td>Santa Fe Community College</td>
<td>Florida</td>
</tr>
<tr>
<td>Hayes, Mikesha</td>
<td>Program Advisor – Financial Aid</td>
<td>Bachelor’s Degree</td>
<td>University of Tampa</td>
<td>Florida</td>
</tr>
<tr>
<td>Heilman, Kaye</td>
<td>Practical Nursing</td>
<td>Associate’s Degree (ASN), RN</td>
<td>Excelsior College</td>
<td>New York</td>
</tr>
<tr>
<td>Herce, Deborah</td>
<td>Program Advisor</td>
<td>Master’s Degree</td>
<td>University of South Florida</td>
<td>Florida</td>
</tr>
</tbody>
</table>
Hoy, Deborah
Program Advisor
P/T Evening Administrator
Educational Specialist Degree
Argosy University
Florida

Hunter, Darcy
Dental Assisting
Master’s Degree
A & M University
Texas

Isaac, Eric
Wireless Telecommunications
Master’s Degree
St. Leo University
Florida

Judge, Olivia
Practical Nursing
Master’s Degree (MSN), RN
University of Phoenix
Arizona

Kagin, April
Practical Nursing
Bachelor’s Degree (BSN), RN
University of South Florida
Florida

Kagin, Brad
A/C, Refrigeration & Heating
Certificate
RACCA Trade School
Florida

Key, Susan
The Learning Center
Master’s/ESOL Degree
Grand Canyon University
Arizona

Kimler, Lydia
Interior Decorating Services
Master’s Degree
Florida State University
Florida

King, Denice
Practical Nursing
Master’s Degree (MSN), ARNP
University of Tampa
Florida

Knowles-Coet, Antoinette
Practical Nursing
Associate’s Degree, RN
Hillsborough Community College
Florida

LaFerriere, Raymond
Applied Welding
Vocational Certificate
School District Hillsborough County
Florida

Lane, Marcus
Drafting
Associate’s Degree
UEI Career Center, Tampa
Florida

LoBalbo, Judith
Program Advisor
Bachelor’s Degree
University of South Florida
Florida

Marshall, Gary
A/C, Refrigeration & Heating
Master’s Degree (MBA)
University of Arkansas
Arkansas

Matassini, Donna
Program Advisor
Master’s Degree
University of South Florida
Florida

Matthias, Sheila
Practical Nursing
Master’s Degree (MSN), ARNP
University of Tampa
Florida
Mattson, Rita
Surgical Technology
Vocational Certification
School District Hillsborough County
Florida

McLeod, Alice
Program Counselor
Master’s Degree
University of South Florida
Florida

Meadows, Mary Katherine
Program Advisor
Master’s Degree
University of South Florida
Florida

Mehranipornejad, Carol
Practical Nursing
Associate’s Degree, RN
University of Phoenix
Arizona

Mitchell, John
Automotive Technology
Master Automobile Technician
ASE (Automotive Service Excellence)
Advanced Vocational Certificate
University of South Florida
Florida

Mitchell, Wendy
Cosmetology
Advanced Vocational Certificate
University of South Florida
Florida

Moody-Paige, Cynthia
Business Technology
P/T Evening Administrator
Master’s Degree
Pace University
New York

Moore, Earl
Drafting
Vocational Certificate
School District Hillsborough County
Florida

Murphy, Alice
Medical Assisting
Associate’s Degree
Tampa College
Florida

Patnode, Caron
Business Technology
Bachelor’s Degree
University of South Florida
Florida

Perez, III, Edward
Automotive Technology
Master Automobile Technician
ASE (Automotive Service Excellence)
Advanced Vocational Certificate
University of South Florida
Florida

Petras, Joseph
Commercial Foods & Culinary Arts
Associate’s Degree
Culinary Institute of America
New York

Pothen, Shibu
Practical Nursing
Bachelor’s Degree (BSN), RN
Barry University
Florida

Rodriguez, Laurie
Learning Center
Bachelor’s Degree
University of South Florida
Florida

Ruman, Timothy
Master Automobile Technician
ASE (Automotive Service Excellence)
Automotive Technology
Vocational Certificate
School District Hillsborough County
Florida

Schutz, Eileen
Nursing Assistant
Master’s Degree, RN
University of South Florida
Florida
<table>
<thead>
<tr>
<th>Name</th>
<th>Program</th>
<th>Institution</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shoffstall, Carolyn</td>
<td>The Learning Center</td>
<td>National-Louis University</td>
<td>Illinois</td>
</tr>
<tr>
<td>Sparkman, Alicia</td>
<td>Practical Nursing</td>
<td>St. Petersburg College</td>
<td>Florida</td>
</tr>
<tr>
<td>Thelen, Mark</td>
<td>Applied Welding</td>
<td>School District Hillsborough County</td>
<td>Florida</td>
</tr>
<tr>
<td>Trinidad, Chantal</td>
<td>Practical Nursing</td>
<td>Hillsborough Community College</td>
<td>Florida</td>
</tr>
<tr>
<td>Troupe, Larry</td>
<td>Barbering</td>
<td>School District Hillsborough County</td>
<td>Florida</td>
</tr>
<tr>
<td>Valdez-Morales, Francisco</td>
<td>Barbering</td>
<td>International Junior College</td>
<td>Puerto Rico</td>
</tr>
<tr>
<td>Van Pelt, William</td>
<td>Wireless Telecommunications</td>
<td>School District Hillsborough County</td>
<td>Florida</td>
</tr>
<tr>
<td>Vidal, John</td>
<td>Plumbing</td>
<td>School District Hillsborough County</td>
<td>Florida</td>
</tr>
<tr>
<td>Vilaret (DMD), Manuel</td>
<td>Dental Assisting</td>
<td>University of Florida</td>
<td>Florida</td>
</tr>
<tr>
<td>Warren, Mary</td>
<td>Medical Billing and Coding</td>
<td>Hillsborough Community College</td>
<td>Florida</td>
</tr>
<tr>
<td>Wiesen, Sr. Ann</td>
<td>Practical Nursing</td>
<td>Southern Illinois University</td>
<td>Illinois</td>
</tr>
<tr>
<td>Wilson, Harold</td>
<td>Electricity</td>
<td>School District Hillsborough County</td>
<td>Florida</td>
</tr>
</tbody>
</table>
Part-Time
Adjunct Faculty

Acosta, Irene
The Learning Center
Master’s Degree
University of Florida
Florida

Brogan, Sara
Practical Nursing
Bachelor’s Degree, RN
Florida State University
Florida

Contos, Judith
Practical Nursing
Associate Degree, RN
Hillsborough Community College
Florida

Deathe, Richard
Commercial Heating & AC Technology
Vocational Certificate
School District Hillsborough County
Florida

Dill-Peterson, Diane
Massage Therapy
Vocational Certificate
School District Hillsborough County
Florida

Farr, Timothy
Applied Welding Technology
Vocational Certificate
School District Hillsborough County
Florida

Fischer, Ruth
Practical Nursing
Master’s Degree, RN
University of South Florida
Florida

Foerstner, Dana
I.V. Skills
Bachelor’s Degree, RN
National-Louis University
Florida

Freyre, Ada
The Learning Center
Master’s Degree (MBA)
Nova Southeastern University
Florida

Garrett, Traci
Cosmetology
Vocational Certificate
School District Hillsborough County
Florida

Giunta, Peggy
The Learning Center
Bachelor’s Degree
School District Hillsborough County
Florida

Guzman, Lupe
Health Science
Vocational Certificate
School District Hillsborough County
Florida

Johnson, Phyllis
The Learning Center
Bachelor’s Degree
University of South Florida
Florida

Lutz, Barbara
Business Education
Vocational Certificate
School District Hillsborough County
Florida
<table>
<thead>
<tr>
<th>Name</th>
<th>Field</th>
<th>Degree</th>
<th>Institution</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maihack, Barbara</td>
<td>Practical Nursing</td>
<td>BSN</td>
<td>Kent State University</td>
<td>Ohio</td>
</tr>
<tr>
<td>Miskowic, Katherine</td>
<td>Practical Nursing</td>
<td>BSN</td>
<td>University of South Florida</td>
<td>Florida</td>
</tr>
<tr>
<td>Mobley, Essie</td>
<td>IV Skills</td>
<td>BSN</td>
<td>Florida A&amp;M University</td>
<td>Florida</td>
</tr>
<tr>
<td>Ojeda, Johanna</td>
<td>Practical Nursing</td>
<td>BSN</td>
<td>University of Tampa</td>
<td>Florida</td>
</tr>
<tr>
<td>Padgett, Jonathan</td>
<td>Business Education</td>
<td>Master's Degree</td>
<td>National-Louis University</td>
<td>Florida</td>
</tr>
<tr>
<td>Reyes, Maria</td>
<td>Practical Nursing</td>
<td>BSN</td>
<td>University of Tampa</td>
<td>Florida</td>
</tr>
<tr>
<td>Robinson, Gwendolyn</td>
<td>Dental Assisting</td>
<td>Vocational Certificate</td>
<td>School District Hillsborough County</td>
<td>Florida</td>
</tr>
<tr>
<td>Ruiz, Maria</td>
<td>Surgical Technology</td>
<td>Vocational Certificate</td>
<td>Erwin Technical Center</td>
<td>Florida</td>
</tr>
<tr>
<td>Sabando, Tamara</td>
<td>Practical Nursing</td>
<td>BSN</td>
<td>Hillsborough Community College</td>
<td>Florida</td>
</tr>
<tr>
<td>Sanchez (Buchmann), Lynda</td>
<td>Electroneurodiagnostic Tech</td>
<td>Vocational Certificate</td>
<td>School District Hillsborough County</td>
<td>Florida</td>
</tr>
<tr>
<td>Sauro, Julie</td>
<td>P/T Evening Administrator</td>
<td>Doctorate Degree</td>
<td>Argosy University</td>
<td>Florida</td>
</tr>
<tr>
<td>Spooner, Jennifer</td>
<td>Business Technology</td>
<td>Bachelor's Degree</td>
<td>University of South Florida</td>
<td>Florida</td>
</tr>
<tr>
<td>Thomas, Tamica</td>
<td>Business Technology</td>
<td>Master's Degree</td>
<td>University of South Florida</td>
<td>Florida</td>
</tr>
<tr>
<td>Warner, Richard</td>
<td>Industrial Applied Welding</td>
<td>Vocational Certificate</td>
<td>School District Hillsborough County</td>
<td>Florida</td>
</tr>
<tr>
<td>Warner, Sandra</td>
<td>The Learning Center</td>
<td>Bachelor's Degree</td>
<td>University of South Florida</td>
<td>Florida</td>
</tr>
<tr>
<td>Ziegler, Shirley</td>
<td>Business Education</td>
<td>Master's Degree</td>
<td>University of South Florida</td>
<td>Florida</td>
</tr>
</tbody>
</table>
# ARTICULATION AGREEMENTS CHART

<table>
<thead>
<tr>
<th>Erwin Program</th>
<th>A.S. or A.A.S. Degree Program</th>
<th>College</th>
<th>Credits</th>
<th>Time Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting Specialist (Accounting Operations)</td>
<td>Office Administration</td>
<td>Statewide Community Colleges (FL)</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Administrative Office Specialist</td>
<td>Office Administration</td>
<td>Statewide Community Colleges (FL)</td>
<td>18</td>
<td>5</td>
</tr>
<tr>
<td>Automotive Service Technology</td>
<td>Automotive Service Management Technology</td>
<td>Statewide Community Colleges (FL)</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>Building Construction Technologies</td>
<td>Building Construction Technology</td>
<td>Statewide Community Colleges (FL)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Carpentry</td>
<td>Building Construction Technology</td>
<td>Statewide Community Colleges (FL)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Computer Repair &amp; Networking (Wireless Telecommunications)</td>
<td>Networking Services Technology or Computer Engineering Technology</td>
<td>Statewide Community Colleges (FL)</td>
<td>9-15</td>
<td>3</td>
</tr>
<tr>
<td>Medical Coder/Biller (ATD Program)**</td>
<td>Health Information Management, or Office Administration - Medical Office Specialization</td>
<td>Statewide Community Colleges (FL)</td>
<td>26</td>
<td>3</td>
</tr>
<tr>
<td>Medical Clinical Laboratory Technician (ATD program)**</td>
<td>Medical Laboratory Technology</td>
<td>Statewide Community Colleges (FL)</td>
<td>40</td>
<td>3</td>
</tr>
<tr>
<td>Plumbing Technology</td>
<td>Building Construction Technology</td>
<td>Statewide Community Colleges (FL)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Practical Nursing</td>
<td>Registered Nursing</td>
<td>Statewide Community Colleges</td>
<td>10</td>
<td>5</td>
</tr>
</tbody>
</table>

Community Colleges and/or Universities have additional admission requirements prior to the awarding of credits. Please contact the institution of interest for their specific requirements.

*If a number is indicated, the Erwin graduate must enter the designated Associate Degree program within the specified number of years of his/her Erwin completion date. Students are encouraged to contact the institution of interest at the point of Erwin program completion to obtain specific articulation requirements including but not limited to time factors.

**ATD (Applied Technology Diploma) guarantees transfer of credit statewide to any community or junior college offering the same program.