Course Descriptions

- Additions, Changes and Deletions
Certified Production Technician

CPT 102 - Safety 3
Safety training to prepare an individual for entry-level employment in a production position with the ability to work in a safe and productive manufacturing workplace. Skill areas include: perform safety and environmental inspections; perform emergency drills and participate in emergency teams; identify unsafe conditions and take corrective action; provide safety orientation for all employees; train personnel to use equipment safely; suggest processes and procedures that support safety of work environment; fulfill safety and health requirements for maintenance, installation, and repair; monitor safe equipment and operator performance; utilize effective, safety-enhancing workplace practices.

CPT 104 - Quality Practices and Measurement 3
Quality skills for the entry-level production employee to participate in periodic internal quality audit activities. Skill areas are: check calibration of gages and other data collection equipment; suggest continuous improvements; inspect materials and product/process at all stages to ensure they meet specifications; document the results of quality tests; communicate quality problems; take corrective actions to restore or maintain quality; record process outcomes and trends; identify fundamentals of blueprint reading; use common measurement systems and precision measurement tools.

CPT 106 - Manufacturing Processes and Production 3
Entry-level production skills include: identify customer needs; determine resources available for the production process; set-up equipment for the production process; set team production goals; make job assignments; coordinate work flow with team members and other work groups; communicate production and material requirements and product specifications; perform and monitor the process to make the product; document product and process compliance with customer requirements; prepare final product for shipping or distribution.

CPT 108 - Maintenance Awareness 3
Prepare the entry-level production worker in the importance and operations of maintenance. Areas of study include: perform preventive maintenance and routine repair; monitor indicators to ensure correct operations; perform all housekeeping to maintain production schedule; recognize potential maintenance issues with basic production systems, including knowledge of when to inform maintenance personnel about problems with electrical, pneumatic, hydraulic and machine automation systems; lubrication processes; bearings and couplings; belts and chain drives.

Computer Applications

CAPP 162 - Desktop Publishing 3
Introduction to the basics of electronic page layout using professional publishing software. Also gain valuable skills in image scanning and manipulation and merging text and graphics.

Computer Information Systems

CIS 132 - Unix

Diagnostic Medical Sonography

DMS 102 - Patient Care and Health Care Communication 2
Entry-level patient care, professionalism, and critical thinking skills utilized in the daily responsibilities of an imaging professional are presented in preparation for student clinical rotations. Best practice verbal and nonverbal communication skills within the health care setting are introduced. Students will learn about appropriate communication for health care providers in culturally sensitive and age-specific situations. Electronic communication basics as well as a brief review of fundamental writing skills will also be covered.

DMS 106 - Medical Law and Ethics 1
Medical law and ethics material presented as specific to the imaging professional, including but not limited to patient rights and confidentiality, medical coding and reimbursement, and the sonographer's scope of practice.

DMS 110 - Scanning Techniques Lab I 3
Instructional lab consisting of instructor-guided hands-on scanning sessions in the Diagnostic Medical Sonography lab. Practical basic preparation for Diagnostic Medical Sonography students' first clinical education experience.

DMS 112 - Scanning Techniques Lab II 2
Prerequisite: DMS 110. A progressive continuation of DMS 110. Instructional lab consisting of instructor-guided hands-on scanning sessions in the Diagnostic Medical Sonography lab. Practical intermediate preparation for the Diagnostic Medical Sonography students continued clinical education experience.
DMS 120 - Sonography Principles and Instrumentation I 3
Comprehensive instruction on acoustic physics, Doppler ultrasound principles, hemodynamics, and ultrasound instrumentation. Bioeffects, safety and the interactions between ultrasound and tissues will be presented. Quality assurance, quality improvement and sonography department protocols will also be covered.

DMS 122 - Sonography Principles and Instrumentation II 3
Prerequisite: DMS 120. A continuation of DMS 120. Comprehensive instruction on acoustic physics, Doppler ultrasound principles, hemodynamics, and ultrasound instrumentation. Bioeffects, safety and the interactions between ultrasound and tissues will be presented. Quality assurance, quality improvement and sonography department protocols will also be covered.

DMS 128 - Sonography Principles and Instrumentation Review 1.5
Review of the sonographic principles and instrumentation curricula presented in DMS 120 and DMS 122 in preparation for the Sonography Principles and Instrumentation National Registry Board Exam.

DMS 130 - General Sonography I 2
Course includes a brief review of the anatomy, physiology and sectional anatomy of the human abdomen, superficial structures and noncardiac chest. Pathology and pathophysiology specific to the general concentration will be presented. Recognition of the normal and abnormal sonographic appearances of the human thoracic, abdominal and superficial anatomy will be taught. Best practice examination methods utilizing ultrasound technology are presented. Basic exam protocols will be discussed.

DMS 132 - General Sonography II 2
Prerequisite: DMS 130. A continuation of DMS 130. Course includes a brief review of the anatomy, physiology and sectional anatomy of the human abdomen, superficial structures and noncardiac chest. Pathology and pathophysiology specific to the general concentration will be presented. Recognition of the normal and abnormal sonographic appearances of the human thoracic, abdominal and superficial anatomy will be taught. Best practice examination methods utilizing ultrasound technology are presented. Basic exam protocols will be discussed.

DMS 134 - General Sonography III 2
Prerequisite: DMS 132. A continuation of DMS 132. Course includes a brief review of the anatomy, physiology and sectional anatomy of the human abdomen, superficial structures and noncardiac chest. Pathology and pathophysiology specific to the general concentration will be presented. Recognition of the normal and abnormal sonographic appearances of the human thoracic, abdominal and superficial anatomy will be taught. Best practice examination methods utilizing ultrasound technology are presented. Basic exam protocols will be discussed.

DMS 140 - OB/GYN Sonography I 2
Prerequisite: DMS 120. A continuation of DMS 120. Comprehensive instruction on acoustic physics, Doppler ultrasound principles, hemodynamics, and ultrasound instrumentation. Bioeffects, safety and the interactions between ultrasound and tissues will be presented. Quality assurance, quality improvement and sonography department protocols will also be covered.

DMS 142 - OB/GYN Sonography II 2
Prerequisite: DMS 140. A continuation of DMS 140. Course includes a brief review of the anatomy, physiology and sectional anatomy of the human gravid and nongravid pelvis. Pathology and pathophysiology specific to the obstetrics and gynecology concentration will be presented. Recognition of the normal and abnormal sonographic appearances of the female human gravid and nongravid pelvis will be taught. Best practice examination methods utilizing ultrasound technology are presented. Basic exam protocols will be discussed. Human embryology as appropriate will be presented.

DMS 144 - OB/GYN Sonography III 2
Prerequisite: DMS 142. A continuation of DMS 142. Course includes a brief review of the anatomy, physiology and sectional anatomy of the human gravid and nongravid pelvis. Pathology and pathophysiology specific to the obstetrics and gynecology concentration will be presented. Recognition of the normal and abnormal sonographic appearances of the female human gravid and nongravid pelvis will be taught. Best practice examination methods utilizing ultrasound technology are presented. Basic exam protocols will be discussed. Human embryology as appropriate will be presented.
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<td>DMS 154</td>
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<td>DMS 160</td>
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Additions          | Changes          | Deletions

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Health Occupations

HEOC 124 - Medical Office Procedures

HEOC 126 - Clinical Assisting Techniques

HEOC 128 - Clinical Practicum
Industrial Technology

INDT 140 - Mechanical and Fluid Power Principles 3
Course includes industrial technology principles and applications involving tools, hardware, mechanical advantage, bearings, belt and gear drives, lubrication, alignment, vibration, as well as fluid power systems, pressure, flow and direction al controls, actuators, conduits, pumps, fluid conditioning, and a minor emphasis on maintenance/troubleshooting.

INDT 142 - Principles of Electricity 3
Course includes industrial technology principles and applications involving electrical topics of direct current, alternating current, electrical quantities and values. Topics also include Ohm's Law, electric generation, energy conversion, magnetism, electromagnetism, series, parallel, and combination circuits, inductance, capacitance, reactance, power factor and the application of electrical power in industry, single and poly-phase transformers, and WYE and DELTA systems.

INDT 144 - Machine Controls 3
Course includes industrial technology principles and applications involving the devices and components of industrial automation; relays, sensors and switches; fluid power components, motor starters and drives; combination of technologies in the systems of manufacturing and industrial processes; and an introduction to line diagrams of control circuits and troubleshooting.

INDT 146 - PLC Automation 3
Course includes industrial technology principles and applications involving Rockwell Automation/Allen-Bradley hardware and software. Configuration of hardware and communications, number systems, logic circuits and basic programming and functions such as one shot, latch, timers, counters, data manipulation will be covered. Emphasis is on ability to visually assess the status of inputs and outputs, verify electrical signals, and comprehend basic PLC operations and functions.

Industrial Electrical Maintenance

IEM 102 - Electric Fundamentals 3
Introduction to electrical theory. Topics include direct current, alternating current, electrical quantities and values, Ohm's Law, electric generation, energy conversion, magnetism, electromagnetism, series, parallel, and combination circuits.

IEM 104 - Electrical Power 3
Prerequisite: IEM 102 with a grade of C or higher. Continuation of electrical studies in AC, inductance, capacitance, reactance, power factor, and the application of electrical power in industry, single and poly-phase transformers, and WYE and DELTA systems.

IEM 106 - Industrial Mechanics 3
Course includes principles and applications of industrial mechanics including tools, hardware, installation and maintenance of bearings, gear systems, belt drives, mechanical drives, principles of lubrication, vibration, and alignment.

IEM 108 - Fluid Power Technology 3
Course covers principles and applications of fluid power technology in industrial systems including operating, troubleshooting and maintaining hydraulic and pneumatic pressure; flow, directional control, and electrical devices; conduits, pumps, compressors, actuators and ancillary devices; and conditioning and filtration of fluids. Critical thinking and analytical skills are emphasized.

IEM 110 - Digital Principles and Applications 3
Prerequisite: IEM 102 with grade of C or higher. Study of decimal, binary and hexadecimal numbering systems, Boolean algebra, basic logic, and truth tables, digital/discrete logic circuits, FLIP-FLOPS, TIMERS, COUNTERS, and REGISTERS.

IEM 112 - Control Circuit Troubleshooting 3
Prerequisite: IEM 112 with a grade of C or higher. Introduction to the devices and components of industrial automation, sensors, switches, fluid power components, and combination of technologies in the systems of manufacturing and industrial processes. Primary emphasis on interpreting line diagrams and troubleshooting control circuits.

IEM 114 - Motor Controls 3
Prerequisite: IEM 112 with a grade of C or higher. Course is designed to teach students how to construct, troubleshoot and isolate malfunctions in various types of control circuits and motor starters; and understand application and installation of control devices and basic principles, operation, components, and application of AC drives.

Additions
Changes
Deletions
SECTION 3 | COURSE DESCRIPTIONS - ADDENDUM

IEM 116 - Solid State Devices 3
Prerequisite: IEM 104 with a grade of C or higher. Comprehensive overview of solid state devices and their basic principles and applications; the composition and operating characteristics of diodes, transistors, SCRs, DIACs, TRIACs, and solid state transducers; and the application of solid state devices in rectification of AC into DC, power supply filters, voltage regulation, industrial relays, sensors, and alarm systems.

IEM 118 - Analog/Digital 3
Prerequisite: IEM 116. Covers the basic principles involving the use of analog integrated operational amplifiers in signal generation applications; integrated A/D, D/A converters and their applications; shift registers and their applications; and control and timing circuits and their applications.

IEM 122 - Introduction to PLCs 3
Prerequisite: IEM 114 with a grade of C or higher. Introduction to hardware and software of Programmable Logic Controllers. Course is designed to instruct students in the operating system of PLCs, configuration of hardware and communications, number systems, logic circuits, and basic programming. The ability to perform basic computer operations is necessary.

IEM 124 - Intermediate PLCs 3
Prerequisite: IEM 122 with a grade of C or higher. Study of the interface between machine and controller, advanced programming functions and troubleshooting. Emphasis is on developing programs and interfacing with industrial type devices.

IEM 132 - Advanced PLCs 3
Prerequisite: IEM 124 with a grade of C or higher. Study of the hardware that is programmed with RSLogix 5000. Course is designed for students who already understand RSLogix 500 and are ready to advance to 'Tag' based programming.

IEM 134 - PLC Networks 3
Prerequisite: IEM 132 with a grade of C or higher. Course will cover the installation, operation, inspection, and maintenance of industrial communication networks using serial RS232, Ethernet and databus. Examines various interface devices used in communication and integration of these devices with computers, PLCs and Web-enabled technology.

IEM 138 - Power Distribution and Switchgear 3
Prerequisite: IEM 136. Course will cover the installation, operation, inspection, and maintenance of industrial electrical power systems, and motor control centers; voltage, current and instrument transformers; feeder circuits and busways; switches and circuit breakers; protective devices; regulating devices; and neutral and grounding systems using the National Electric Code (NEC) as a reference.

IEM 140 - Transformers and Motors 3
Prerequisite: IEM 104 with a grade of C or higher. Course examines the principles, construction, types, and applications of transformers and motors, including DC generators and motors, alternators and AC motors. Transformers and AC motors applications include single-phase and poly-phase, WYE and DELTA.

IEM 200 - Technology Integration 3
Prerequisite: IEM 124 with a grade of C or higher. Course will evaluate student's skill and ability to design, develop and troubleshoot a simulated manufacturing production system. Students will build a working production system in a simulated workplace environment stressing teamwork and troubleshooting skills. The goal is to prepare a student for entry into the workforce as an IEM technician.

Health Information Technology

HIT 275 - Practical Professional Experience
Prerequisite: Consent of program coordinator. Field-based professional practice experience in a hospital, physician's office, clinic or other health care setting with directed projects common to a clinical coding specialist on the job. Students will be assigned specific professional practice projects to be completed at the site and will participate in management and administrative activities. This is an unpaid work experience requiring 120 hours of participation.

Physical Science

PHYS 125 - Technical Science 4
Corequisite: MATH 108 or MATH 112 with a grade of C or higher or equivalent placement score. Designed to help students develop a better understanding of physics as it applies to the operation of machinery. Topics include measurement, applied geometry, mechanics, fluids, waves, simple machine, energy and power, heat and temperature, electricity, and magnetism.
### Psychology
- **PSY 115 - Human Sexuality**

### Radiologic Technology
- **RAD 160 - CT Sectional Anatomy and Pathology**
  - 4
  - Review sectional anatomy and common pathology conditions as they appear in CT images. Aid imaging science students in recognizing, locating and identifying normal anatomy on various computer images. Introduce various pathological disorders that can be seen while performing CT scans on the various anatomical sections of the body.

- **RAD 162 - CT Physics and Instrumentation**
  - 3
  - Overview of the physical principles and instrumentation associated with computed tomography. Topics include methods of data acquisition and manipulation, CT systems and operations, and image processing and display. Quality management and artifact recognition will also be discussed.

- **RAD 164 - CT Imaging Procedures**
  - 3
  - Overview of scanning techniques related to the central nervous system, neck, thorax, abdomen and pelvis, vascular (CTA), spine and musculoskeletal regions. Anatomy, positioning criteria, and various protocols will be studied.

- **RAD 166 - CT Clinical Education**
  - 6
  - Clinical education provides the student with the opportunity to practice the skills and theory taught in the classroom. Students will demonstrate CT exam competency, while practicing patient care and professionalism. Exam performance, professionalism skills and critical thinking will be evaluated in this course.

- **RAD 168 - CT Registry Review**
  - 3
  - Course provides a comprehensive review of CT in preparation for the National Certification Examination. Numerous simulated registry examinations will be administered during the course.

### Real Estate
- **REAL 105 - Principles of Real Estate**
- **REAL 107 - Real Estate Law**
- **REAL 110 - Introduction to Finance**
- **REAL 112 - Real Estate Appraisal**

### Speech and Theatre
- **SPTH 122 - Costume Construction**
  - 3
  - Course intends to introduce the student to the field of costume technology through the practical experience in the execution of theatrical costume techniques, basic sewing skills and costume crew.

### Web Development
- **WEB 115 - Introduction to Mobile Applications**
  - 3
  - Course will introduce student to the Web technologies and provide experience creating Web applications. Student will learn all the steps needed to take an app idea from concept to development.

### Welding
- **WELD 105 - Advanced Pipe Welding**
  - 3
  - Prerequisite: WELD 103. Course will utilize the GTAW (TIG) process for joining of pipe. ASME Section 9 will be the governing code with welder qualifications available for the successful student.

- **WELD 114 - Structural Layout and Shapes**
  - 3
  - Course is designed to provide students with the knowledge and skills to accurately set up various structural welding layouts. Students will learn to utilize multiple geometric instruments, fixtures and other tools to attain and maintain strict tolerance and adhere to industry standards for the preparation and methods of structural welding.