Maryland
STATE DEPARTMENT OF EDUCATION

Program of Study Guide: Certified Clinical Medical Assistant - DRAFT

Comprehensive guidelines and course standards for the Certified Clinical Medical Assistant

Office of College and Career Pathways

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MARYLAND STATE DEPARTMENT OF EDUCATION

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Purpose

The purpose of this document is to communicate the required Career and Technical Education (CTE) academic standards for the Certified Clinical Medical Assistant Program of Study. The academic standards in this document are theoretical and performance based. The standards contain content from multiple state departments of education and the National Healthcareer Association (NHA) Certified Clinical Medical Assistant (CCMA) Certification Standards and have been **reviewed and vetted by members of the Maryland business and industry community.**

In addition to academic standards, the Maryland State Department of Education (MSDE) has incorporated into this document Labor Market Information (LMI) definitions and explanations for the Program of Study; program aligned Industry Recognized Credentials; and Work-Based Learning resources and requirements by course level.

This document is intended for use by educational administrators and practitioners. A similar document is available for each state-approved CTE Program of Study.

Standards Sources

Certified Clinical Medical Assistant standards are based on various research-backed sources, best practices, and national frameworks that guide effective K-12 education. The following sources provide a rigorous foundation for the Certified Clinical Medical Assistant standards, ensuring they are well-rounded, research-driven, and aligned with national expectations and young learners' unique needs.

Here are the primary sources that these standards draw from:

1. **National Healthcareer Association (NHA) Certified Clinical Medical Assistant (CCMA) Certification Standards**
   A. **Description:** The NHA provides the CCMA certification, outlining the competencies required for medical assistants, including clinical patient care, administrative assisting, anatomy and physiology, and patient care coordination.
   B. **Usage**: The CCMA I, II, III, and IV courses are designed to cover the domains specified in the NHA CCMA exam content outline, ensuring that students acquire the necessary knowledge and skills to pass the certification exam and perform effectively in healthcare settings.
   C. **Source**: NHA CCMA Certification Details

2. **Commission Occupational Analysis of the Medical Assistant Profession**
   A. **Description:** This analysis provides detailed information on the tasks and responsibilities of medical assistants, including the knowledge, skills, and abilities required for the role.
   B. **Usage:** The CCMA courses incorporate competencies identified in the occupational analysis to ensure that the curriculum aligns with real-world job requirements and employer expectations.
   C. **Source:** Occupational Analysis

3. **American Heart Association First Aid and CPR Certification Standards**
   A. **Description:** The American Heart Association (AHA) provides guidelines and certifications for First Aid, CPR, and Basic Life Support, which are widely recognized in healthcare and education.
   B. **Usage:** AHA standards are integrated into the CNA curriculum, requiring students to obtain First Aid certification to enhance patient safety and emergency care skills.
   C. **Source:** American Heart Association First Aid Certification

4. **American Association of Medical Assistants (AAMA) Role Delineation Study**
   A. **Description:** The AAMA conducts studies to define the role of medical assistants, outlining the essential functions and competencies required in the profession.
   B. **Usage**: Insights from the AAMA Role Delineation Study inform the development of course objectives and outcomes, ensuring that the CCMA program prepares students for the multifaceted responsibilities of medical assistants.
   C. **Source**: AAMA Role Delineation

5. **National Center for Competency Testing (NCCT) Medical Assistant Certification Standards**
   A. **Description:** The NCCT offers certification for medical assistants, detailing the competencies and knowledge areas assessed in their certification exam.
   B. **Usage**: The CCMA program incorporates standards from the NCCT to provide a well-rounded curriculum that prepares students for various certification exams and professional practice.
   C. **Source:** NCCT Medical Assistant Certification

6. **Occupational Safety and Health Administration (OSHA) Healthcare Workplace Standards**
   A. **Description:** OSHA sets workplace health and safety standards to protect workers in healthcare environments, including regulations on handling biohazards and ergonomic safety.
   B. **B. Usage:** These standards are embedded in CNA courses to educate students on safe practices, workplace hazards, and emergency response.
   C. **C. Source:** OSHA Healthcare Standards

7. **Medical Terminology Standards by Health Occupations Students of America (HOSA)**
   A. **Description:** HOSA provides guidelines and resources for teaching medical terminology as an essential skill for healthcare professionals.
   B. **Usage:** These standards ensure consistent and accurate use of medical terminology across CNA program coursework.
   C. **Source:** HOSA Medical Terminology

Course Descriptions

Course Level	Course Information	Description
Required Core: Course 1	Certified Clinical Medical Assistant I SCED: <XX> Grades: 9-12 Prerequisite: None Credit: 1	Certified Clinical Medical Assistant (CNA) I course introduces students to the foundational knowledge and skills required to pursue a career in healthcare as a Certified Clinical Medical Assistant. Students will gain an understanding of healthcare systems, patient care practices, medical terminology, and safety protocols. Through classroom instruction and hands-on practice, students will learn to measure vital signs, provide basic patient care, and understand the principles of infection control. Emphasis is placed on the development of professionalism, communication, and ethical decision-making. This course prepares students to progress into the Certified Clinical Medical Assistant II course, where they will complete the requirements for the National Healthcareer Association's (NHA) Certified Clinical Medical Assistant exam.
Required Core: Course 2	Certified Clinical Medical Assistant II SCED: <XX> Grades: 10-12 Prerequisite: Certified Clinical Medical Assistant I Credit: 1	Certified Clinical Medical Assistant II course builds upon the foundational skills from the Certified Clinical Medical Assistant I course, developing essential clinical and administrative skills. Students engage in hands-on practice of tasks such as measuring vital signs, performing diagnostic tests, administering medications under supervision, and managing patient records. The course also introduces the basics of pharmacology and medical office operations, ensuring students are prepared for a dual role in clinical and administrative healthcare settings. Key topics addressed are infection control and biohazard safety in clinical environments; measuring and documenting vital signs (temperature, pulse, respiration, blood pressure, BMI); clinical procedures: phlebotomy, electrocardiography (ECG), and specimen collection; basics of pharmacology: drug classifications, common medications, and administration methods; and

		administrative tasks: electronic health records (EHR), appointment scheduling, and billing basics. Students will demonstrate competencies in performing clinical and administrative tasks, laying the groundwork for success in healthcare internships and successfully pass the National Healthcareer Association's (NHA) Certified Clinical Medical Assistant exam.
Optional Flex: Course 1	Certified Clinical Medical Assistant III SCED: <XX> Grades: 11-12 Prerequisite: Certified Clinical Medical Assistant I and II Credit: 1	Certified Clinical Medical Assistant III course focuses on the structure and functions of the human body to provide students with the advanced knowledge needed to deliver effective patient care. Students will explore the relationships between anatomy, physiology, and disease, emphasizing homeostasis, pathophysiology, and responses to the external environment. Laboratory investigations and the use of medical technologies will prepare students to analyze diagnostic data, understand therapeutic interventions, and apply science concepts in clinical scenarios. This course is ideal for students preparing for advanced healthcare pathways.
Optional Flex: Course 2	Career Connected Learning I SCED: <XX> Grades: 11-12 Prerequisite: Certified Clinical Medical Assis I and II Credit: 1	This flexible, work-based learning course introduces students to real-world applications of classroom knowledge and technical skills through on-the-job experiences and reflective practice. Students engage in career exploration, skill development, and professional networking by participating in youth apprenticeships, registered apprenticeships, pre-apprenticeships, internships, capstone projects, or other approved career-connected opportunities. Variable credit (1–3) accommodates the required on-the-job training hours and related instruction. By integrating industry standards, employability skills, and personalized learning goals, Career Connected Learning I equips students to make informed career decisions, develop a professional portfolio, and build a strong foundation for success in postsecondary education, training, or the workforce.
Optional Flex: Course 3	Career Connected Learning II	Building on the foundational experiences of Career Connected Learning I, this advanced work-based

	SCED: <XX> Grades: 11-12 Prerequisite: Career Connected Learning I Credit: 1	learning course provides students with deeper on-the-job practice, leadership opportunities, and refined career exploration. Students continue to enhance their technical and professional skills, expanding their industry networks and aligning personal goals with evolving career interests. Variable credit (1–3) remains aligned with the required training hours and related instruction. Through elevated responsibilities and skill application, Career Connected Learning II prepares students to confidently transition into higher-level postsecondary programs, apprenticeships, or the workforce.

Dual Enrollment and Career Connected Learning Experiences Must be Aligned to the CTE Core.

Industry-Recognized Credentials and Work-Based Learning

Industry-Recognized Credentials
By the end of Certified Clinical Medical Assistant III: Certified Clinical Medical Assistant – To be eligible to sit for the exam, you must possess a high school diploma or GED/high school equivalency or are scheduled to earn a high school diploma or GED/High equivalency in the next 12 months **Optional Credentials (via the Flex Course options**): Dual Credit Options, Apprenticeships, Internships

Work-Based Learning Examples and Resources		
Certified Clinical Medical Assistant I and II**:** **Career Awareness**	Certified Clinical Medical Assistant III: **Career Preparation**	**Flex Courses:** **Career Preparation**
• Industry Visits • Guest Speakers • Participation in Career and Technical Student Organizations • Postsecondary Visits – Program Specific Site Tours • Mock Interviews	• All of Career Awareness plus the following: • Job Shadow • Paid and Unpaid Internships	• Paid and Unpaid Internships • Apprenticeships

Labor Market Information: Definitions and Data

Labor market information (LMI) plays a crucial role in shaping Career and Technical Education (CTE) programs by providing insights into industry demands, employment trends, and skills gaps. This data helps education leaders assess the viability of existing programs and identify opportunities for new offerings. By aligning CTE programs with real-time labor market needs, schools can better prepare students for in-demand careers and ensure that resources are effectively utilized to support pathways that lead to high-quality, sustainable employment.

Standard Occupational Code (SOC) and Aligned Industry:

Indicator	Definition	Pathway Labor Market Data
High Wage[1]	Those occupations that have a 25th percentile wage equal to or greater than the most recent MIT Living Wage Index for one adult in the state of Maryland, and/or leads to a position that pays at least the median hourly or annual wage for the DC-VA-MD-WV Metropolitan Statistical Area (MSA). *Note: A 25th percentile hourly wage of $24.74 or greater is required to meet this definition.*	**Standard Occupational Code:** 31-9092: Clinical Medical Assistants in Maryland **Hourly Wage/Annual Salary:** 25th Percentile: $18.29 / $38,043.20 50th Percentile: $21.16 / $44,012.80 75th Percentile: $22.65 / $47,112.00
High Skill	Those occupations located within the DC-VA-MD-WV Metropolitan Statistical Area (MSA) with the following education or training requirements: completion of an apprenticeship program; completion of an industry-recognized certification or credential; associate's degree, bachelor's degree, or higher.	**Typical Entry-Level Education:** Postsecondary nondegree award.
In-Demand	Annual growth plus replacement, across all Maryland occupations, is 405 openings between 2024-2029.	**Annual Openings –** 2,205

Labor Market Information Data Source

Lightcast Q4 2024 Data Set. Lightcast occupation employment data are based on final Lightcast industry data and final Lightcast staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors). Occupational wage estimates are also

[1] Living Wage Calculator: https://livingwage.mit.edu/states/24

affected by county-level Lightcast earnings by industry. Foundational data for the state of Maryland is collected and reported by the Maryland Department of Labor.

Methodology for High Wage Calculations

To combine labor market data across multiple Standard Occupational Classifications (SOCs), a weighted average approach was used to ensure accurate representation of the marketplace. Median wages for each SOC were weighted based on their respective employment levels, reflecting the relative demand for each occupation. This method ensures that occupations with higher employment contribute proportionately to the overall wage calculation. Additionally, job openings from all relevant SOCs were summed to determine the total projected demand. For example, if Mechanical Engineers account for 67% of total employment and Electrical Engineers for 33%, their respective wages are weighted accordingly, and job openings are aggregated to provide a comprehensive view of labor market opportunities. This approach delivers a balanced and accurate representation of both wages and employment demand for the program.

Methodology for In-Demand Calculations

The baseline for annual job openings, taking into account new positions and replacement positions, was determined by taking the average of all annual job openings between 2024 and 2029 across all 797 career sectors at the 5-digit SOC code level. For the 2024-2029 period, average job openings (growth + replacement) is 405.

Course Standards: Certified Clinical Medical Assistant I

1. **GENERAL REQUIREMENTS.** This course is recommended for students in Grades 9-12, and there is no prerequisite.

2. **INTRODUCTION**
   A. Career and Technical Education (CTE) instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.
   B. The Health and Human Services Career Cluster promotes whole health in individuals and communities through diverse services. This sector includes technical, mental, and therapeutic services and personal care supported by medical and social sciences. By addressing social determinants of health and leveraging health data and science, this Cluster aims to enhance the overall health and resilience of individuals, families, and communities.
   C. The Certified Clinical Medical Assistant Program of Study prepares high school students with essential clinical and administrative skills. Students practice hands-on tasks such as measuring vital signs, performing diagnostic tests, administering medications under supervision, and managing patient records. The course also introduces the basics of pharmacology and medical office operations, ensuring students are prepared for a dual role in clinical and administrative healthcare settings. Key topics addressed are infection control and biohazard safety in clinical environments; measuring and documenting vital signs (temperature, pulse, respiration, blood pressure, BMI); clinical procedures: phlebotomy, electrocardiography (ECG), and specimen collection; basics of pharmacology: drug classifications, common medications, and administration methods; and administrative tasks: electronic health records (EHR), appointment scheduling, and billing basics. Students will be prepared to successfully pass the National Healthcareer Association's (NHA) Certified Clinical Medical Assistant exam.
   D. Certified Clinical Medical Assistant I introduce students to the foundational knowledge and skills required to pursue a career in healthcare. Students will gain an understanding of healthcare systems, patient care practices, medical terminology, and safety protocols. Through classroom instruction and hands-on practice, students will learn to measure vital signs, provide basic patient care, and understand the principles of infection control. Emphasis is placed on developing professionalism, communication, and ethical decision-making. This course prepares students to progress into Certified Clinical Medical Assistant II, where they will complete the Certified Clinical Medical Assistant certification requirements.
   E. Students will participate in at least two Career-Connected Education and Work-Based Learning experiences in this course, which might include informational interviews or job shadowing relevant to the program of study.
   F. Students are encouraged to participate in extended learning experiences through aligned Career and Technical Student Organizations (CTSOs). CTSOs are a cocurricular requirement in the Carl D. Perkins Act, and alignment to CTSO activities is an expectation for CTE programs in the state of Maryland.

3. **KNOWLEDGE AND SKILLS**

   A. The student demonstrates the necessary skills for career development, maintenance of employability, and successful completion of course outcomes. The student is expected to:

1. Identify and demonstrate positive work behaviors that enhance employability and job advancement, such as regular attendance, promptness, proper attire, maintenance of a clean and safe work environment, and pride in work.
2. Demonstrate positive personal qualities such as flexibility, open-mindedness, initiative, active listening, and a willingness to learn.
3. Employ effective reading, writing, and technical documentation skills.
4. Solve problems using critical thinking techniques and structured troubleshooting methodologies.
5. Demonstrate leadership skills and collaborate effectively as a team member.
6. Implement safety procedures, including proper use of software and following privacy guidelines.
7. Exhibit an understanding of legal and ethical responsibilities in the healthcare field, following copyright laws and regulations.
8. Demonstrate time-management skills and the ability to prioritize tasks in a technical setting.

B. The student identifies various career pathways in the healthcare field. The student is expected to:

1. Develop a career plan that includes the necessary education, certifications, job skills, and experience for specific roles in healthcare.
2. Create a professional resume and portfolio that reflect skills, projects, certifications, and recommendations.
3. Demonstrate effective interview skills for roles in healthcare fields.

C. The student develops technology and digital literacy skills. The student is expected to:

1. Use technology as a tool for research, organization, communication, and problem-solving.
2. Use digital tools, including computers, mobile devices, collaboration platforms, and cloud services, to access, manage, and create information.
3. Demonstrate proficiency in using emerging and industry-standard technologies.
4. Understand ethical and legal considerations for technology use, including the principles of data protection, copyright, and responsible technology use.

D. The student integrates core academic skills into healthcare practices. The student is expected to:

1. Demonstrate the use of clear communication techniques, both written and verbal, that are consistent with industry standards.
2. Apply English concepts such as writing informative texts when documenting healthcare plans and articulating goals.
3. Use mathematical concepts for measurement and conversion (Fahrenheit vs. Celsius), ratios and proportions as well as fraction and decimal conversions.

E. The student demonstrates foundational knowledge of healthcare systems and careers in the Health and Biosciences Cluster. The student is expected to:

1. Identify the therapeutic, diagnostic, environmental, and informational systems of the healthcare industry.
2. Evaluate career pathways in the Health and Biosciences Cluster, including entry-level and advanced roles in healthcare.
3. Examine the history, economics, and current trends in the healthcare industry, including their impact on healthcare delivery.
4. Investigate professional and personal qualities essential for success in healthcare careers.

F. The student demonstrates knowledge of human anatomy, physiology, and pathophysiology as it relates to patient care. The student is expected to:

1. Explain the basic structure and functions of major human body systems in health and illness.
2. Identify the signs, symptoms, and care considerations for common diseases and disorders.
3. Apply concepts of anatomy and physiology to real-world scenarios, including patient assessments and care planning.
4. Use medical terminology accurately to describe human anatomy, conditions, and procedures.

G. The student demonstrates the ability to provide safe and effective care in a healthcare environment. The student is expected to:

1. Maintain a safe environment for patients, healthcare providers, and visitors by following safety and emergency protocols.
2. Perform techniques related to infection control, including proper hand hygiene, use of personal protective equipment (PPE), and waste disposal.
3. Identify various pathogenic microorganisms, modes of transmission, and strategies for preventing healthcare-associated infections (HAIs).
4. Demonstrate basic first aid skills and obtain first aid certification from a recognized organization, such as the American Heart Association.

H. The student demonstrates proficiency in technical procedures used in healthcare settings. The student is expected to:

1. Accurately measure and record vital signs, including temperature, pulse, respiration, and blood pressure.
2. Perform basic patient care tasks, including bathing, grooming, toileting, and feeding, while maintaining patient dignity.
3. Assist with mobility and positioning techniques, including transferring patients and using assistive devices.
4. Administer basic restorative care, such as range-of-motion exercises and skin integrity maintenance.
5. Apply mathematical operations and calculations related to healthcare, such as medication dosages and fluid intake/output measurements.

I. The student demonstrates knowledge of ethical and legal responsibilities in healthcare. The student is expected to:

1. Analyze ethical considerations in healthcare, including patient confidentiality, autonomy, and informed consent.
2. Demonstrate knowledge of legal responsibilities, including adherence to scope of practice, reporting requirements, and healthcare laws such as HIPAA.
3. Evaluate case studies to make informed decisions regarding ethical and legal challenges in healthcare.

J. The student demonstrates understanding and application of healthcare technologies and resources. The student is expected to:

1. Use medical technologies and electronic health records (EHR) to document patient care and access healthcare information.
2. Evaluate research reports, media, and scientific studies related to healthcare issues and advancements.
3. Explore the role of health data and evidence-based practices in improving patient outcomes and healthcare delivery.

K. The student demonstrates readiness to apply healthcare concepts to real-world patient care scenarios. The student is expected to:

1. Apply science concepts in the assessment and delivery of medical and healthcare services.
2. Simulate basic nursing assistant procedures in a controlled environment, preparing for clinical practice.
3. Engage in clinical decision-making by analyzing patient conditions and identifying appropriate interventions.
4. Integrate academic and technical skills to address scenarios involving therapeutic, diagnostic, and preventive healthcare services.

Course Standards: Certified Clinical Medical Assistant II

1. **GENERAL REQUIREMENTS.** This course is recommended for students in Grades 10-12, and Certified Clinical Medical Assistant I is the prerequisite.

2. **INTRODUCTION**
   A. Career and Technical Education (CTE) instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.
   B. The Health and Human Services Career Cluster promotes whole health in individuals and communities through diverse services. This sector includes technical, mental, and therapeutic services and personal care supported by medical and social sciences. By addressing social determinants of health and leveraging health data and science, this Cluster aims to enhance the overall health and resilience of individuals, families, and communities.
   F. The Certified Clinical Medical Assistant Program of Study prepares high school students with essential clinical and administrative skills. Students practice hands-on tasks such as measuring vital signs, performing diagnostic tests, administering medications under supervision, and managing patient records. The course also introduces the basics of pharmacology and medical office operations, ensuring students are prepared for a dual role in clinical and administrative healthcare settings. Key topics addressed are infection control and biohazard safety in clinical environments; measuring and documenting vital signs (temperature, pulse, respiration, blood pressure, BMI); clinical procedures: phlebotomy, electrocardiography (ECG), and specimen collection; basics of pharmacology: drug classifications, common medications, and administration methods; and administrative tasks: electronic health records (EHR), appointment scheduling, and billing basics. Students will be prepared to successfully pass the National Healthcareer Association's (NHA) Certified Clinical Medical Assistant exam.
   B. Certified Clinical Medical Assistant II builds on the foundational skills from Certified Clinical Medical Assistant I, focusing on essential clinical and administrative skills and preparation for certification as a Certified Clinical Medical Assistant. Students engage in hands-on practice of tasks such as measuring vital signs, performing diagnostic tests, administering medications under supervision, and managing patient records. The course also introduces the basics of pharmacology and medical office operations, ensuring students are prepared for a dual role in clinical and administrative healthcare settings
   C. Students will participate in at least two Career-Connected Education and Work-Based Learning experiences in this course, which might include informational interviews or job shadowing relevant to the program of study.
   D. Students are encouraged to participate in extended learning experiences through aligned Career and Technical Student Organizations (CTSOs). CTSOs are a cocurricular requirement in the Carl D. Perkins Act, and alignment to CTSO activities is an expectation for CTE programs in the state of Maryland.

3. **KNOWLEDGE AND SKILLS**
   A. The student demonstrates the necessary skills for career development, maintenance of employability, and successful completion of course outcomes. The student is expected to:
      1. Identify and demonstrate positive work behaviors that enhance employability and job advancement, such as regular attendance, promptness, proper attire, maintenance of a clean and safe work environment, and pride in work.

2. Demonstrate positive personal qualities such as flexibility, open-mindedness, initiative, active listening, and a willingness to learn.
3. Employ effective reading, writing, and technical documentation skills.
4. Solve problems using critical thinking techniques and structured troubleshooting methodologies.
5. Demonstrate leadership skills and collaborate effectively as a team member.
6. Implement safety procedures, including proper use of software and following privacy guidelines.
7. Exhibit an understanding of legal and ethical responsibilities in the healthcare field, following copyright laws and regulations.
8. Demonstrate time-management skills and the ability to prioritize tasks in a technical setting.

B. The student identifies various career pathways in the healthcare field. The student is expected to:

1. Develop a career plan that includes the necessary education, certifications, job skills, and experience for specific roles in healthcare.
2. Create a professional resume and portfolio that reflect skills, projects, certifications, and recommendations.
3. Demonstrate effective interview skills for roles in healthcare fields.

C. The student develops technology and digital literacy skills. The student is expected to:

1. Use technology as a tool for research, organization, communication, and problem-solving.
2. Use digital tools, including computers, mobile devices, collaboration platforms, and cloud services, to access, manage, and create information.
3. Demonstrate proficiency in using emerging and industry-standard technologies.
4. Understand ethical and legal considerations for technology use, including the principles of data protection, copyright, and responsible technology use.

D. The student integrates core academic skills into healthcare practices. The student is expected to:

1. Demonstrate the use of clear communication techniques, both written and verbal, that are consistent with industry standards.
2. Apply English concepts such as writing informative texts when documenting healthcare plans and articulating goals.
3. Use mathematical concepts for measurement and conversion (Fahrenheit vs. Celsius), ratios and proportions as well as fraction and decimal conversions.

E. The student demonstrates the necessary knowledge and skills to apply infection control and standard precautions. The student is expected to:

1. Demonstrate proper hand hygiene techniques, including surgical scrubbing protocols.
2. Identify and utilize appropriate personal protective equipment (PPE) based on patient care tasks and potential exposure risks.
3. Safely handle, store, and dispose of biohazardous materials, such as sharps, contaminated linens, and bodily fluids, in compliance with OSHA regulations.
4. Educate peers and patients on infection control principles to promote a safe healthcare environment.

F. The student demonstrates proficiency in measuring and documenting vital signs accurately. The student is expected to:

1. Use manual and electronic devices to measure temperature, pulse, respiration, and blood pressure, ensuring proper calibration and technique.
2. Assess and document variations in height, weight, and body mass index (BMI) with attention to patient comfort and privacy.
3. Interpret abnormal vital signs and communicate findings promptly to the healthcare team.

G. The student demonstrates the ability to perform clinical procedures according to established protocols. The student is expected to:

1. Conduct phlebotomy procedures, including venipuncture and capillary draws, ensuring patient comfort and specimen integrity.
2. Operate and maintain electrocardiography (ECG) equipment, recognizing basic normal and abnormal waveform patterns.
3. Collect, label, and process laboratory specimens, such as urine and throat swabs, for diagnostic testing.
4. Adhere to procedural checklists to ensure accuracy and consistency in clinical practices.

H. The student understands pharmacology and medication administration basics. The student is expected to:

1. Differentiate among drug classifications, including their therapeutic uses, potential side effects, and contraindications.
2. Assist with administering oral, topical, and injectable medications under supervision.
3. Educate patients about common medications, including correct usage and potential adverse effects.

I. The student demonstrates proper patient positioning and preparation. The student is expected to:

1. Position patients correctly for various examinations and procedures, including supine, prone, and Fowler's positions.
2. Prepare examination areas by ensuring appropriate equipment and supplies are sanitized and available.
3. Explain procedures to patients in clear, compassionate language to reduce anxiety and ensure understanding.

J. The student documents and communicates patient care accurately. The student is expected to:

1. Apply medical terminology to create accurate and detailed patient records.
2. Transcribe physician orders into electronic health records (EHR) and paper documentation systems.
3. Communicate patient needs, findings, and concerns effectively to team members using industry-standard language.

K. The student demonstrated knowledge of legal and ethical considerations. . The student is expected to:

1. Explain the importance of patient confidentiality and HIPAA regulations, ensuring all records are secure and accessed only as necessary.
2. Describe the process for obtaining informed consent and the ethical implications of patient autonomy.

3. Recognize and report mandatory cases such as abuse, communicable diseases, and workplace incidents.

L. The student utilizes electronic health records (EHR). The student is expected to:

1. Navigate EHR systems to input patient data, document interactions, and update medical histories.
2. Schedule and manage patient appointments, ensuring accuracy in timing and documentation.
3. Generate and interpret patient reports to facilitate provider decision-making.

M. The student assists with patient education. The student is expected to:

1. Explain the importance of patient confidentiality and HIPAA regulations, ensuring all records are secure and accessed only as necessary.
2. Describe the process for obtaining informed consent and the ethical implications of patient autonomy.
3. Recognize and report mandatory cases such as abuse, communicable diseases, and workplace incidents.

N. The student responds to medical emergencies effectively. The student is expected to:

1. Perform first aid procedures, such as treating wounds, managing burns, and controlling bleeding.
2. Administer CPR and use an automated external defibrillator (AED) following AHA guidelines.
3. Recognize and respond to life-threatening conditions such as strokes, heart attacks, or anaphylaxis by activating emergency response protocols.

Course Standards: Certified Clinical Medical Assistant III

1. **GENERAL REQUIREMENTS.** This course is recommended for students in Grades 11-12, and the Certified Clinical Medical Assistant I and II are prerequisites.

2. **INTRODUCTION**

   A. Career and Technical Education (CTE) instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.
   B. The Health and Human Services Career Cluster promotes whole health in individuals and communities through diverse services. This sector includes technical, mental, and therapeutic services and personal care supported by medical and social sciences. By addressing social determinants of health and leveraging health data and science, this Cluster aims to enhance the overall health and resilience of individuals, families, and communities.
   C. The Certified Clinical Medical Assistant Program of Study prepares high school students with essential clinical and administrative skills. Students practice hands-on tasks such as measuring vital signs, performing diagnostic tests, administering medications under supervision, and managing patient records. The course also introduces the basics of pharmacology and medical office operations, ensuring students are prepared for a dual role in clinical and administrative healthcare settings. Key topics addressed are infection control and biohazard safety in clinical environments; measuring and documenting vital signs (temperature, pulse, respiration, blood pressure, BMI); clinical procedures: phlebotomy, electrocardiography (ECG), and specimen collection; basics of pharmacology: drug classifications, common medications, and administration methods; and administrative tasks: electronic health records (EHR), appointment scheduling, and billing basics. Students will be prepared to successfully pass the National Healthcareer Association's (NHA) Certified Clinical Medical Assistant exam.
   D. Certified Clinical Medical Assistant III course focuses on the structure and functions of the human body to provide students with the advanced knowledge needed to deliver effective patient care. Students will explore the relationships between anatomy, physiology, and disease, with emphasis on homeostasis, pathophysiology, and responses to the external environment. Laboratory investigations and the use of medical technologies will prepare students to analyze diagnostic data, understand therapeutic interventions, and apply science concepts in clinical scenarios. This course is ideal for students preparing for advanced healthcare pathways.
   E. Students will participate in at least two Career-Connected Education and Work-Based Learning experiences in this course, which might include informational interviews or job shadowing relevant to the program of study.
   F. Students are encouraged to participate in extended learning experiences through aligned Career and Technical Student Organizations (CTSOs). CTSOs are a co-curricular requirement in the Carl D. Perkins Act, and alignment to CTSO activities is an expectation for CTE programs in the state of Maryland.

3. **KNOWLEDGE AND SKILLS**

   A. The student demonstrates the necessary skills for career development, maintenance of employability, and successful completion of course outcomes. The student is expected to:

1. Identify and demonstrate positive work behaviors that enhance employability and job advancement, such as regular attendance, promptness, proper attire, maintenance of a clean and safe work environment, and pride in work.
2. Demonstrate positive personal qualities such as flexibility, open-mindedness, initiative, active listening, and a willingness to learn.
3. Employ effective reading, writing, and technical documentation skills.
4. Solve problems using critical thinking techniques and structured troubleshooting methodologies.
5. Demonstrate leadership skills and collaborate effectively as a team member.
6. Implement safety procedures, including proper use of software and following privacy guidelines.
7. Exhibit an understanding of legal and ethical responsibilities in the healthcare field, following copyright laws and regulations.
8. Demonstrate time-management skills and the ability to prioritize tasks in a technical setting.

B. The student identifies various career pathways in the healthcare field. The student is expected to:

1. Develop a career plan that includes the necessary education, certifications, job skills, and experience for specific roles in healthcare.
2. Create a professional resume and portfolio that reflect skills, projects, certifications, and recommendations.
3. Demonstrate effective interview skills for roles in healthcare fields.

C. The student develops technology and digital literacy skills. The student is expected to:

a. Use technology as a tool for research, organization, communication, and problem-solving.
b. Use digital tools, including computers, mobile devices, collaboration platforms, and cloud services, to access, manage, and create information.
c. Demonstrate proficiency in using emerging and industry-standard technologies.
d. Understand ethical and legal considerations for technology use, including the principles of data protection, copyright, and responsible technology use.

D. The student integrates core academic skills into healthcare practices. The student is expected to:

a. Demonstrate the use of clear communication techniques, both written and verbal, that are consistent with industry standards.
b. Apply English concepts such as writing informative texts when documenting the design process and articulating goals.
c. Use mathematical concepts for measurement and conversion (Fahrenheit vs. Celsius), ratios and proportions as well as fraction and decimal conversions.

E. The student demonstrates advanced understanding of the structure and functions of the human body in the context of nursing and healthcare. The student is expected to:

1. Analyze the relationships between the anatomical structures and physiological functions of human body systems and their connection to health and disease.
2. Evaluate the effects of disease, trauma, and congenital defects on cells, tissues, organs, and systems.

3. Use directional terms, anatomical planes, and body cavities to describe the organization of the human body and its systems.
4. Examine the interdependence of body systems in maintaining homeostasis and responding to internal and external stimuli.

F. The student demonstrates proficiency in applying medical and scientific knowledge to healthcare services. The student is expected to:

1. Investigate the chemical and physical processes that occur within the human body, including metabolism, energy transfer, and electrical interactions.
2. Conduct laboratory investigations and apply scientific methods to solve healthcare-related problems and make informed decisions.
3. Analyze the impact of environmental factors, such as toxins and pathogens, on the human body's systems and health.
4. Explain the role of transport systems in the body, including circulatory, lymphatic, and respiratory functions.

G. The student demonstrates the use of medical terminology related to body systems in healthcare contexts. The student is expected to:

1. Accurately define and effectively use medical vocabulary related to anatomical structures, physiological functions, and diseases.
2. Transcribe medical terms in clinical scenarios and patient documentation accurately and efficiently.
3. Interpret diagnostic reports and medical records using relevant medical terminology.
4. Communicate anatomical and physiological information using precise medical language.

H. The student demonstrates the ability to integrate scientific and healthcare knowledge in clinical practice. The student is expected to:

1. Implement investigative procedures, including posing questions, formulating hypotheses, and using appropriate diagnostic methods and technologies.
2. Apply principles of cellular biology and histology to assess and understand disease processes.
3. Use diagnostic and therapeutic technologies accurately, including imaging systems, laboratory tests, and monitoring devices.
4. Organize, analyze, and interpret data from patient assessments to predict trends and make clinical decisions.

I. The student analyzes the historical, cultural, and global context of healthcare delivery. The student is expected to:

1. Compare and contrast the historical significance of medicine with current practices and future advancements.
2. Examine cultural and lifespan considerations in healthcare delivery, including their impact on patient care and outcomes.
3. Analyze global healthcare issues, including regulatory frameworks and challenges in delivering equitable care.
4. Predict future trends in healthcare, including advancements in technology and their implications for patient care.

J. The student demonstrates the ability to evaluate and address healthcare challenges using systems thinking. The student is expected to:

1. Construct general systems models using inputs, throughputs, and feedback loops to represent physiological processes.

2. Analyze the interconnectedness of body systems and their roles in maintaining overall health.
3. Evaluate healthcare delivery systems, regulatory agencies, and their role in improving patient outcomes in a global economy.
4. Propose solutions to healthcare challenges using evidence-based strategies and interdisciplinary approaches.

K. The student demonstrates readiness for advanced nursing programs and future healthcare careers. The student is expected to:

1. Apply knowledge of anatomy, physiology, and pathophysiology in clinical simulations and real-world scenarios.
2. Synthesize concepts from biology, chemistry, and physics to enhance understanding of human body functions.
3. Explore career pathways in healthcare, including the progression from CNA to LPN, RN, or other advanced roles.
4. Develop a professional portfolio that highlights laboratory investigations, clinical skills, and knowledge of human body systems.

Course Standards: Career Connected Learning I and II

Career connected learning is an educational approach that integrates classroom instruction with real-world experiences, enabling high school students to explore potential careers and develop relevant skills before graduation. By participating in work-based learning opportunities—such as apprenticeships, internships, capstone projects, and school-based enterprises—students apply academic concepts in authentic settings, gain practical industry knowledge, and build professional networks. This hands-on engagement helps students connect their studies to future career paths, strengthens their problem-solving and communication skills, and supports a smoother transition into college, vocational programs, or the workforce.

All Career and Technical Education Programs of Study include aspects of work-based learning, and almost all of the programs include two Career Connected Learning (CCL) courses. Below are the course descriptions for CCL I and CCL II. The CCL standards can be found via this link: