Maryland
STATE DEPARTMENT OF EDUCATION

Program of Study Guide: Physical Rehabilitation - DRAFT

Comprehensive guidelines and course standards for the Physical Rehabilitation

Office of College and Career Pathways

July 2025

MARYLAND STATE DEPARTMENT OF EDUCATION

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Document Control Information

Title:	Program of Study Guide: Physical Rehabilitation
Security Level:	Not for Distribution
File Name:	Physical Rehabilitation. docx

DOCUMENT HISTORY

Document Version	Date	Summary of Change
1.0	October 2024	Initial Document

Purpose

The purpose of this document is to communicate the required Career and Technical Education (CTE) academic standards for the Physical Rehabilitation Program of Study. The academic standards in this document are theoretical and performance-based. The standards contain content from multiple state departments of education, National Health Standards, NSPA Certified Personal Trainer Certification Standards, AMCA Physical Therapy Technician/Aide 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

Physical Rehabilitation 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 Physical Rehabilitation 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 Health Science Standards (NHSS)**
   A. **Description: Developed by the National Consortium for Health Science Education (NCHSE),** the NHSS provide a clear and consistent understanding of industry and postsecondary expectations for health science teachers and students. They cover essential knowledge areas such as human anatomy, physiology, common diseases and disorders, and medical math principles.
   B. **Usage: These standards form the foundation of the Physical Rehabilitation curriculum,** ensuring that students acquire the necessary academic knowledge and skills pertinent to health science professions.
   C. Source: National Health Science Standards

2. **Next Generation Science Standards (NGSS)**
   A. **Description:** The NGSS establishes rigorous science education benchmarks, focusing on scientific inquiry, systems thinking, and the application of science concepts in real-world contexts.
   B. **Usage:** These standards support the integration of anatomy, physiology, and pathophysiology content in Clinical Nursing Assistant III to align with science education requirements.
   C. **Source:** Next Generation Science Standards

3. **NSPA Certified Personal Trainer Certification**
   A. **Description:** Offered by the National Strength Professionals Association (NSPA), this certification equips individuals with the knowledge and skills necessary to design and implement effective fitness programs, emphasizing practical application and scientific principles in strength training and conditioning.
   B. **Usage:** In the Physical Rehabilitation II course, students prepare for the NSPA Certified Personal Trainer exam, enabling them to develop and supervise fitness programs that enhance physical health and rehabilitation outcomes.
   C. **Source:** NSPA – Personal Trainer Certification

4. **Advance CTE Education Career Cluster Framework: Health and Human Services**
   A. **Description:** The Advance CTE Education Career Cluster Framework defines the knowledge and skills necessary for success in the Health and Human Services Cluster, promoting health, wellness, and resilience in individuals and communities.
   B. **B. Usage:** The framework provides a foundation for aligning the CNA program to broader healthcare career pathways and industry expectations.
   C. **Source:** Advance CTE Career Clusters.

5. **AMCA Physical Therapy Technician/Aide Certification**
   A. **Description:** Provided by the American Medical Certification Association (AMCA), this certification validates competencies in assisting physical therapists with patient care, therapeutic exercises, and administrative tasks, ensuring adherence to industry standards and best practices.
   B. **Usage**: Students in the Physical Rehabilitation II course are prepared to sit for the AMCA Physical Therapy Technician/Aide exam, certifying their ability to support physical therapy services effectively.
   C. **Source**: AMCA Physical Therapy Technician/Aide Certification

6. **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, 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

Course Descriptions

Course Level	Course Information	Description
Required Core: Course 1	Physical Rehabilitation I SCED: <XX> Grades: 9-12 Prerequisite: None Credit: 1	Physical Rehabilitation I course introduces 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 the development of professionalism, communication, and ethical decision-making. Upon completion, students will earn certification in First Aid, CPR, and AED, preparing them for more advanced coursework in the pathway.
Required Core: Course 2	Physical Rehabilitation II SCED: <XX> Grades: 10-12 Prerequisite: Physical Rehabilitation I Credit: 1	Physical Rehabilitation II builds on the foundational skills introduced in Physical Rehabilitation I, emphasizing advanced therapeutic practices, injury prevention, and rehabilitation strategies. Students deepen their understanding of musculoskeletal, neuromuscular, and cardiopulmonary systems and explore the use of therapeutic modalities such as taping, therapeutic heat and cold applications, and mobility support techniques. Students also engage in career exploration and job readiness activities, developing skills in professional communication and workplace ethics. By the end of the course, students are prepared to sit for the NSPA Certified Personal Trainer and/or AMCA Physical Therapy Aide certifications. This course provides a strong foundation for students pursuing post-secondary education and careers in physical therapy, athletic training, and related healthcare fields.

Course Level	Course Information	Description
Optional Flex: Course 1	Physical Rehabilitation III SCED: <XX> Grades: 11-12 Prerequisite: Physical Rehabilitation I and II Credit: 1	Physical Rehabilitation 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 to enter advanced healthcare pathways in Physical Rehabilitation.
Optional Flex: Course 2	Career Connected Learning I SCED: <XX> Grades: 11-12 Prerequisite: Physical Rehabilitation 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.

Course Level	Course Information	Description
Optional Flex: Course 3	Career Connected Learning II SCED: <XX> Grades: 11-12 Prerequisite: Career Connected Learning I Credit: 1	Building on the foundational experiences of Career Connected Learning I, this advanced work-based 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 Physical Rehabilitation I: First Aid, CPR, and AED Certifications **Physical Rehabilitation II:** Certified Person Trainer by the National Strength Professionals Association (NSPA) and Physical Therapy Aide by the American Medical Certification Association (AMCA) (the Physical Therapy Aide is currently not on IRC list) Post-secondary education is required beyond these entry-level certifications **Optional Credentials (via the Flex Course options**): Dual Credit Options, Apprenticeships, Internships

Work-Based Learning Examples and Resources		
Physical Rehabilitation I and II**:** **Career Awareness**	Physical Rehabilitation 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:** 31-2022: Physical Therapist Aides 39-9031: Exercise Trainers and Group Fitness Instructors 31-2021: Physical Therapy Assistants 29-9091: Athletic Trainers 29-1123: Physical Therapists 31-2011: Occupational Therapy Assistants 29-1122: Occupational Therapists **Hourly Wage/Annual Salary:** 25th Percentile: $39.72 / $82,617.60 50th Percentile: $48.28 / $100,422.40 75th Percentile: $57.13 / $118,830.40
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:** High school diploma or equivalent, Associate's degree, Bachelor's degree, Doctoral or professional degree

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

Indicator	Definition	Pathway Labor Market Data
In-Demand	Annual growth plus replacement, across all Maryland occupations, is 405 openings between 2024-2029.	**Annual Openings** Physical Therapist Aides – 167 Exercise Trainers and Group Fitness Instructors – 1,053 Physical Therapy Assistants – 343 Athletic Trainers - 24 Physical Therapists - 244 Occupational Therapy Assistants - 142 Occupational Therapists - 188

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 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: Physical Rehabilitation I

1. **GENERAL REQUIREMENTS.** This course is recommended for students in Grades 9-12 and there are no 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 Physical Rehabilitation Program of Study prepares high school students for careers in physical therapy, occupational therapy, athletic training, and related healthcare fields. This comprehensive pathway integrates classroom learning, hands-on skill development, and real-world experiences through internships and apprenticeships. Students earn industry certifications such as Basic First Aid, CPR, AED, NSPA Certified Personal Trainer, and AMCA Physical Therapy Aide to enhance employability and career readiness. The program equips students with the skills needed for post-secondary education and entry-level healthcare roles by focusing on diagnostic and therapeutic practices, workplace professionalism, and critical thinking. Graduates are prepared for advanced studies and careers in physical therapy, occupational therapy, and other physical rehabilitation fields.
   D. Physical Rehabilitation I course introduces 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. Upon completion, students will earn certification in First Aid, CPR, and AED, preparing them for more advanced coursework in the pathway.
   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 reflects 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 patient notes, procedures, 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. Demonstrate techniques for supporting patients in physical rehabilitation, such as mobility assistance and therapeutic exercises.
3. Analyze healthcare data and patient information to evaluate outcomes and inform rehabilitation practices.
4. Use emerging technologies to simulate and practice rehabilitative techniques.
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. Engage in clinical decision-making by analyzing patient conditions and identifying appropriate interventions.
3. Integrate academic and technical skills to address scenarios involving therapeutic, diagnostic, and preventive healthcare services.

Course Standards: Physical Rehabilitation II

1. **GENERAL REQUIREMENTS.** This course is recommended for students in Grades 10-12 and Physical Rehabilitation 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.
   C. The Physical Rehabilitation Program of Study prepares high school students for careers in physical therapy, occupational therapy, athletic training, and related healthcare fields. This comprehensive pathway integrates classroom learning, hands-on skill development, and real-world experiences through internships and apprenticeships. Students earn industry certifications such as Basic First Aid, CPR, AED, NSPA Certified Personal Trainer, and AMCA Physical Therapy Aide to enhance employability and career readiness. The program equips students with the skills needed for post-secondary education and entry-level healthcare roles by focusing on diagnostic and therapeutic practices, workplace professionalism, and critical thinking. Graduates are prepared for advanced studies and careers in physical therapy, occupational therapy, and other physical rehabilitation fields.
   C. Physical Rehabilitation II builds on the foundational skills introduced in Physical Rehabilitation I, emphasizing advanced therapeutic practices, injury prevention, and rehabilitation strategies. Students deepen their understanding of musculoskeletal, neuromuscular, and cardiopulmonary systems and explore the use of therapeutic modalities such as taping, therapeutic heat and cold applications, and mobility support techniques. Students also engage in career exploration and job readiness activities, developing skills in professional communication and workplace ethics. By the end of the course, students are prepared to sit for the NSPA Certified Personal Trainer and/or AMCA Physical Therapy Aide certifications. This course provides a strong foundation for students pursuing post-secondary education and careers in physical therapy, athletic training, and related healthcare fields.
   D. 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.
   E. 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 patient notes, procedures, 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 and advanced communication skills in physical rehabilitation. The student is expected to:

1. Demonstrate effective oral and written communication skills to interact with patients, colleagues, and healthcare professionals in therapeutic settings.
2. Accurately document patient care and rehabilitation progress using professional healthcare communication standards.
3. Read, understand, evaluate, and interpret healthcare-related information, including research reports and patient records.

F. The student explores career opportunities and prepares for employment in physical rehabilitation. The student is expected to:

1. Demonstrate proper infection control techniques using standard precautions to ensure patient and practitioner safety.
2. Identify and mitigate safety risks in physical rehabilitation settings to create a safe therapeutic environment.

G. The student applies infection control and safety standards in therapeutic healthcare practices. The student is expected to:

1. Demonstrate proper infection control techniques using standard precautions to ensure patient and practitioner safety.
2. Identify and mitigate safety risks in physical rehabilitation settings to create a safe therapeutic environment

H. The student demonstrates advanced therapeutic practices in physical rehabilitation. The student is expected to:

1. Safely assist patients with transfers, mobility, and positioning using appropriate techniques for diverse patient needs.
2. Detect abnormal structures, functions, and common injuries of the human body and determine appropriate interventions or referrals.
3. Identify strengths and weaknesses of alternative solutions, conclusions, or approaches to basic therapeutic care problems using logic and reasoning.
4. Generate and implement comprehensive rehabilitation programs tailored to address basic therapeutic needs and patient goals.

I. The student applies diagnostic and therapeutic devices and skills. The student is expected to:

1. Utilize basic diagnostic, protective, and injury preventive devices such as taping, therapeutic heat, and cold applications effectively.
2. Assist with and describe the application of therapeutic modalities, including electrical stimulation, ultrasound therapy, and range-of-motion exercises

J. The student knowledge of anatomy, physiology, and related healthcare practices. The student is expected to:

1. Demonstrate an understanding of human anatomy and physiology, including how it relates to injury prevention, rehabilitation, and therapy.
2. Evaluate the impact of risky behaviors on the human body and develop strategies to promote optimal wellness and physical fitness in patients.

K. The student demonstrates ethical, legal, and professional standards in physical rehabilitation. The student is expected to:

1. Apply ethical, legal, and safety practices relevant to therapeutic healthcare settings, ensuring compliance with industry standards.
2. Practice professional behavior, including empathy, cultural competence, and patient confidentiality, in all interactions.

L. The student demonstrates accurate data collection and clinical skills. The student is expected to:

1. Use precise data collection methods to document patient conditions, progress, and outcomes effectively.
2. Earn clinical setting hours by participating in hands-on experiences that prepare students for college programs in Physical Therapy, Physical Therapy Assistant, Athletic Training, Occupational Therapy, or Occupational Therapy Assistant programs.

M. The student develops skills for certification and career readiness in physical rehabilitation. The student is expected to:

1. Prepare for the **NSPA Certified Personal Trainer** and **AMCA Physical Therapy Aide** certification exams by mastering the required competencies.
2. Explore the integration of healthcare technologies, such as electronic health records and telemedicine tools, in physical rehabilitation practices.

Course Standards: Physical Rehabilitation III

1. **GENERAL REQUIREMENTS.** This course is recommended for students in Grades 11-12, and Physical Rehabilitation I and II are the 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 Physical Rehabilitation Program of Study prepares high school students for careers in physical therapy, occupational therapy, athletic training, and related healthcare fields. This comprehensive pathway integrates classroom learning, hands-on skill development, and real-world experiences through internships and apprenticeships. Students earn industry certifications such as Basic First Aid, CPR, AED, NSPA Certified Personal Trainer, and AMCA Physical Therapy Aide to enhance employability and career readiness. The program equips students with the skills needed for post-secondary education and entry-level healthcare roles by focusing on diagnostic and therapeutic practices, workplace professionalism, and critical thinking. Graduates are prepared for advanced studies and careers in physical therapy, occupational therapy, and other physical rehabilitation fields.
   D. Physical Rehabilitation 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 to enter advanced healthcare pathways in Physical Rehabilitation.
   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 patient notes, procedures, 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.

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: