

SYLLABUS
PART I
EDISON STATE COMMUNITY COLLEGE
PTA 120S BIOMECHANICS, KINESIOLOGY, AND PATHOLOGY
6 CREDIT HOURS

COURSE DESCRIPTION

Role and practice of the physical therapist assistant who works under the direction and supervision of the physical therapist. Essential foundational content is built upon to effectively provide interventions for patients/clients in the areas of body mechanics, transfers, posture, goniometry, manual muscle testing, gait training, gait analysis, exercise techniques and application of normal kinesiological principals. Study, analysis, and treatment of pathological joint conditions are learned and demonstrated. Laboratory component. Prerequisite: PTA 101S, ALH 101S, ALH 151S, MTH 125S, BIO 125S. Prerequisite or Co-requisite: BIO 126S and PTA 125S. Lab fee.

COURSE GOALS

The student will:

Bloom's Level		Program Outcomes
2	1. Participate with professional conduct when interacting with faculty and staff.	2,3
3	2. Demonstrate technically correct oral and written communication skills (at the novice level) necessary to communicate biomechanical interventions to the supervising physical therapist and other members of the healthcare team.	3,5,13
4	3. Compare anatomical postures and axes of motion and integrate this information in order to successfully apply this to a patient treatment.	7,8,12,14
3	4. Apply the knowledge of relationships between forces and the biomechanical principles of joint movement to interventions.	1,7,8
4	5. Classify the proximal and distal attachments, innervations and function of the major skeletal muscles that cross a given joint.	7
1	6. Identify all considerations during given functional mobility activities.	1,4,12,14
2	7. Distinguish normal from abnormal muscle tone.	1
1	8. Identify and record normal and abnormal joint mobility in practice settings.	1
3	9. Demonstrate use of safe body mechanics.	1,12
2	10. Describe resting posture in any position, and appropriate recommendations for adaptation of the environment for the realignment of trunk and extremities at rest and during activities.	1,7,12,14
2, 3	11. Describe and demonstrate passive range of motion, functional active assistive and active range of motion, and perform correct goniometric measurements in defined lab situations.	1,7,14
4	12. Demonstrate and instruct safe patient/client transfers between chair or mat table and wheelchair and movement during all patient and lab interactions.	1,2,7,12
2	13. Name and compare the phases of the normal gait cycle.	1
3	14. Demonstrate the safe use and proper fit of an assistive device, as well as training a simulated patient, during gait training and other functional activities on even and uneven surfaces.	1,7,12,14
3	15. Demonstrate safe performance of therapeutic techniques to assist a patient	1,7,8,14

	with performing basic bed mobility.	
2	16. Discuss the principles of conditioning and reconditioning as it applies to a patient exercise program.	1,4,7
2	17. Describe and demonstrate manual muscle testing, stretching, and strengthening exercises including plyometrics.	1,7,14
4	18. Describe, identify, and analyze common pathological changes in the musculoskeletal system.	1,2,7,8,9,13
4	19. Adapt postural alignment to maximize the efficiency of movement and biomechanics during a treatment activity.	1,7,8,14
3	20. Produce and teach a home exercise program for a patient/client with a musculoskeletal diagnosis within a given plan of care.	3,6
4	21. Compare the roles of the Physical Therapist (PT) and the Physical Therapist Assistant (PTA).	3,6
5	22. Adapt patient position as necessary for patient limitations to obtain accurate goniometric measurements of all joints.	1,4,7,14
4	23. Analyze posture and work station of a live subject.	1,7,8
5	24. Create a home program for a live subject addressing postural and work station concerns with exercise interventions and environmental adaptations.	1,5,7,8,13
2	25. Distinguish grades and perform joint mobilization of peripheral joints.	1,9
1	26. Identify physiological responses that may be seen during stretching or strengthening training.	1,7,8,9
3	27. Identify and demonstrate safe and proper performance of therapeutic exercise and other interventions addressing orthopedic pathologies.	1,7,8

CORE VALUES

The Core Values are a set of principles that guide in creating educational programs and environments at Edison. They are communication, ethics, critical thinking, human diversity, inquiry and respect for learning, and interpersonal skills and teamwork. The goals, objectives, and activities in this course will introduce or reinforce those Core Values whenever possible.

TOPIC OUTLINE

1. Assistive/adaptive devices and their care and safe use
2. Axes and planes of movement
3. Body mechanics, bed mobility and transfers
4. Evidence-based practice
5. Functional mobility
6. Gait and locomotion training and progression
7. Goniometry and active and passive range of motion
8. Joint kinesiology and surface anatomy
9. Muscle stretching and strengthening
10. Muscle tone, mass, and length
11. Normal and abnormal joint mobility
12. Normal resting posture and realignment during activities
13. Professional oral and written communication using medical terminology
14. Manual muscle testing
15. Joint mobilization
16. PT/PTA roles
17. Home exercise program
18. Postural analysis
19. Orthopedic pathologies

