A. **TITLE:** Advanced Physical Therapy Modalities

B. **COURSE NUMBER:** PHTA 206

C. **CREDIT HOURS:** 2 credit hours

D. **WRITING INTENSIVE COURSE:** No

E. **COURSE LENGTH:** 15 weeks

F. **SEMESTER(S) OFFERED:** Fall semester

G. **HOURS OF LECTURE, LABORATORY, RECITATION, TUTORIAL, ACTIVITY:**
   1 hour lecture, 3 hours lab per week

H. **CATALOG DESCRIPTION:**
   Fall, 2 credit hours
   Students will learn basic principles of electricity and electrotherapy. Application of electrotherapeutic agents for pain control, neuromuscular stimulation, and tissue/wound healing will be studied and applied. Students will be introduced to spinal traction as a therapeutic modality. Students will enhance their research skills by reviewing and critiquing current professional literature related to various course topics. 1 hour lecture, 3 hours lab per week

I. **PRE-REQUISITES/CO-COURSES:**
   Pre-requisites: All first year PTA curriculum.
   Co-requisites: PHTA 203, 204, & 205

J. **GOALS (STUDENT LEARNING OUTCOMES):** By the end of this course, the student will:

<table>
<thead>
<tr>
<th>Course Objective</th>
<th>Institutional SLO</th>
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<tbody>
<tr>
<td>1. Demonstrate safe and effective implementation of the following electrotherapeutic agents:</td>
<td>#3 Prof Comp</td>
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<tr>
<td>a. TENS</td>
<td></td>
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<tr>
<td>b. High Volt Stimulation/combo</td>
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<tr>
<td>c. Interferential Stimulation</td>
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<tr>
<td>d. Iontophoresis</td>
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<tr>
<td>e. Neuromuscular Electrical Stimulation</td>
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<td>2. Demonstrate safe and effective application of mechanical spinal traction;</td>
<td>#3 Prof Comp</td>
</tr>
<tr>
<td>3. Demonstrate safe and effective application of electromyographic biofeedback;</td>
<td>#3 Prof Comp</td>
</tr>
<tr>
<td>6. Discuss the principles of implementation, treatment rationale, safety</td>
<td>#2 Critical</td>
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<td>considerations, and anticipated patient responses associated with items</td>
<td>Thinking</td>
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<tr>
<td>#3, 4, and 5 above;</td>
<td>#3 Prof Comp</td>
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<td>7. Communicate verbally and non-verbally with the patient and others in an</td>
<td>#1 Communication</td>
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<td>effective, appropriate, and capable manner during lab competencies, lab</td>
<td>#3 Prof Comp</td>
</tr>
<tr>
<td>practical, and case scenario implementation</td>
<td>#4 Inter/Intra Pers</td>
</tr>
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</table>


8. Demonstrate competency in performing components of data collection skills as part of the electrical stimulation or traction intervention, including:
   a. recognize absent or altered sensation
   b. recognize normal and abnormal integumentary changes
   c. recognize normal and abnormal joint movement
   d. administer standardized questionnaires or scales for pain
   e. recognize activities, positioning, postures that aggravate or relieve pain
   f. recognize changes in patient’s state of arousal, mentation, cognition
   g. recognize changes in muscle tone
   h. recognizes alignment of trunk and extremities at rest or during activity

9. Complete thorough, accurate, concise, timely, and legible documentation;

10. Synthesize information from 4 different research articles to make a determination of effectiveness of select electrotherapy modalities.

11. Demonstrate effective education to patients and caregivers regarding the use of modalities or traction related to their condition;

12. Maintain safe working environment and assure safety of patient and self during all interactions.

13. Demonstrate comprehension of the physical therapy plan of care through case scenario implementation.

14. Make appropriate adjustments to the administration of modalities within the plan of care to maximize expected response to treatment and report verbally or in documentation to physical therapist.

15. Recognize when a modality should not be administered due to changes in patient status and communicate to physical therapist.

16. Demonstrate ability to submit accurate charge sheets following case scenario implementation.

K. **TEXTS:**

K. **REFERENCES:**
   Behrens, BJ (2006) *Physical Agents, Theory and Practice for the PTA*
L. **EQUIPMENT:**
   Electrotherapeutic agents; mechanical traction units; treatment tables; other basic PT lab equipment

M. **GRADING METHOD:**
   Students are required to earn a 75% or better in both the lecture and laboratory components of all professional courses to satisfactorily complete the course.

   Conversion of a number grade to a letter grade is as follows:
   - A = 90-100
   - B+ = 86-89
   - B = 80-85
   - C+ = 75-79
   - C = 70-74
   - D+ = 65-69
   - D = 60-64
   - F = below 60

N. **MEASUREMENT CRITERIA/METHODS:**
   Written examinations, quizzes, lab competency checks, lab practical, literature reviews, homework assignments.

O. **DETAILED COURSE OUTLINE:**

   I. **Principles of Electricity**
      A. Properties of Electricity
      B. Types of Current

   II. **Principles of Electrotherapy**
      C. Indications and Contraindications
      D. Parameters
      E. Physiologic Basis

   III. **Principles of Pain Control**
      F. Pain Scales/Questionnaires
      G. Perception of Pain
      H. Gate Control Theory

   IV. **TENS**
      I. Conventional
      J. Burst
      K. Modulated

   V. **Interferential Stimulation**
      L. Theory
      M. Modes
      N. Options
VI. NMES
   O. Specific Parameters
   P. Treatment Implications

VII. High Volt Stimulation
   Q. Characteristics
   R. Versatility

VIII. Combination Stimulation

IX. Iontophoresis
   S. Physiology
   T. Medicinal Ions

X. EMG Biofeedback
   U. Theory
   V. Motor Learning
   W. Relaxation

XI. Spinal Traction
    A. Indications/Contraindications
    B. Cervical Traction
    C. Pelvic Traction

P. LABORATORY OUTLINE:

I. Electrical Safety
   A. Safety Inspection of Equipment
   B. Introduction to Electrical Stimulation Devices

II. Preparation
   A. Patient Preparation
      1. Positioning and Draping
      2. Sensory Assessment
      3. Skin Preparation
      4. Patient Education
      5. Machine Positioning
   B. Electrical Preparation
      1. Selection
      2. Preparation and Securing
      3. Size and Spacing

III. Transcutaneous Electrical Stimulation
    A. Conventional
    B. Burst
    C. Modulated
    D. Patient Equipment Check Out
IV. Interferential Stimulation

V. Neuromuscular Electrical Stimulation
   A. Strengthening Protocol
   B. Re-education Protocol
   C. Edema Protocols

VI. High Volt Stimulation
   A. Wound Healing
   B. Edema Control
   C. Muscle Spasm/Pain

VII. Combination Stimulation
   A. Trigger Point
   B. Muscle Spasm Re-education

VIII. Iontophoresis

IX. EMG Biofeedback
   A. Muscle Performance
   B. Relaxation

X. Spinal Traction
   A. Cervical Traction
      1. Seated
      2. Supine
   B. Pelvic Traction
      1. Supine
      2. Prone