END-1300: INTRODUCTION TO ELECTRONEURODIAGNOSTIC TECHNOLOGY

Cuyahoga Community College

Viewing: END-1300 : Introduction to Electroneurodiagnostic Technology

Board of Trustees:
January 2023

Academic Term:
Fall 2023

Subject Code
END - Electroneurodiagnostic

Course Number:
1300

Title:
Introduction to Electroneurodiagnostic Technology

Catalog Description:
Introduction and orientation to health careers in field of electroneurodiagnostics including specific duties, certifications and licensure requirements, work setting and conditions, and career ladder opportunities. Overview of standards of practice of clinical neurophysiology with emphasis on neuroscience technique, instrumentation, terminology of electroneurodiagnostic practices and recording/monitoring techniques utilized in determination of treatment plans for neurological disorders, and basic medical terminology.

Credit Hour(s):
2

Lecture Hour(s):
2

Requisites

Prerequisite and Corequisite
None.

Outcomes

Course Outcome(s):
Make an informed decision regarding pursuing a career as an Electroneurodiagnostic Technologist.

Essential Learning Outcome Mapping:
Critical/Creative Thinking: Analyze, evaluate, and synthesize information in order to consider problems/ideas and transform them in innovative or imaginative ways.

Objective(s):
1. Discuss the job responsibilities of an electroneurodiagnositc technologist.
2. Demonstrate the ability to practice universal precautions and patient safety.
3. Discuss the history of electroneurophysiology and its future directions.
4. Discuss the standards of practice for various electroneurodiagnostic procedures.
5. Discuss the pathogenic and clinical aspects of various neurological process.
6. Describe basic electronics as applied in electroneurodiagnositc testing procedures.
7. Describe basic instrumentation used in electroneurodiagnostic equipment including signal averaging.
8. Discuss pharmacological effects on electroneurodiagnostic procedures.

Course Outcome(s):

Communicate with other health career professionals utilizing terminology applied to the neurosciences specifically used in electroneurodiagnostic fields through written, oral, and digital means.

Essential Learning Outcome Mapping:

Written Communication: Demonstrate effective written communication for an intended audience that follows genre/disciplinary conventions that reflect clarity, organization, and editing skills.

Objective(s):

1. Correctly spell, define, and pronounce medical terms used in the field of electroneurodiagnostic technology.
2. Explain how various medical terms, symbols, and abbreviations are used in the clinical setting.
3. Recognize and identify components of medical terms used in the field of electroneurodiagnostic technology.

Methods of Evaluation:

a. Quizzes
b. Exams
c. Comprehensive final
d. Writing Assignment (research paper on neurological disorder)

Course Content Outline:

a. History of electroneurodiagnostic technology
    i. Presentation
    ii. Use in diagnosis
b. Job responsibilities of the electroneurodiagnostic technologist
    i. Specific duties
    ii. Work setting and working conditions
    iii. Salaries
    iv. Employment outlook
    v. Career ladder availability
    vi. Licensure and certification requirements
    vii. Interaction with other health career programs
    viii. Communications
        1. various modes of communication used in neurosciences
            a. written
            b. oral
            c. digital
        2. applied electroneurodiagnostic terminology
        3. components of electroneurodiagnostic reports
c. Ethics of patient care
    i. Review of patient''s expectations, behaviors, and perceptions
    ii. Universal precautions
    iii. Patient assessments
    iv. Patient safety
d. Overview of neurological disorders and discussion of neuropathology's
    i. Symptoms of neurological disorder
    ii. Neurological disorders of known pathologies
        1. infections of nervous system
        2. vascular diseases
    iii. Disorders of cerebrospinal and brain fluids
    iv. Tumors
    v. Trauma
    vi. Birth injuries and developmental abnormalities
    vii. Genetic diseases and recognized biochemical abnormalities
    viii. Neurological disorders of uncertain pathogenesis
        1. cerebral degeneration of childhood
        2. neurocutaneous disorders
        3. cranial nerve disorders

4. peripheral nerve disorders
5. movement disorders
6. spinal cord diseases

ix. Neurology of the Environment
1. alcoholism
2. chemical abuse
3. latrogenic diseases
4. pollutants and industrial hazards
5. acquired immunodeficiency syndrome

e. Discussion of recommended standards of practices for the various Electroneurophysiology procedures
i. Standards of electronics and application for
1. eletroencephalography
2. evoked potentials
3. electromyography and nerve conduction studies
4. intra operative monitoring

ii. Overview of basic electrical safety
iii. Instrumentation and signal averaging

f. Pharmacological effects on neurological disorders that are involved in electroneurodiagnostic procedures
g. Medical terminology
i. Prefixes
ii. Suffixes
iii. Anatomical Positions
iv. Body Planes
v. Directional Terms

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Resources

Miliken, M. E. *Understanding Human Behavior: A Guide to Health Care Providers*. 9th ed. Albany, NY: Delmar Publishers, 2017.

Purtilo, R. *Health Professional and Patient Interaction*. 9th ed. Philadelphia: W. B. Saunders, 2018.

Rowland, L. P. *Merrit's Textbook of Neurology*. 14th ed. Philadelphia: Lea and Febriger, 2021.

Mark H. Libenson. *Practical Approach to Electroencephalography*. 1st ed. Saunders Elsevier, 2010.

Gregory L. Krauss, MD, Rober S. Fisher, MD, PhD. *Johns Hopkins Atlas of Digital EEG, An Interactive Training Guide*. 2nd ed. The Johns Hopkins University Press, 2011.

Sylvia Engdahl. *Neurodegenerative Disorders*. 1st ed. Greenhaven Press, 2013.

Thoru Yamada, Elizabeth Meng. *Practical Guide for Clinical Neurophysiological Testing: EP, LTM, IOM, PSG, & NCS*. 1st ed. Wolters Kluwer Lippicott, Williams & Wilkins, 2011.

Cynthia Mattice, Rita Brooks, Teofilo Lee-Chiong. *Fundamentals of Sleep Technology*. 3rd ed. Wolters Kluwer, Lippincott, Williams & Wilkins, 2019.

William H. Spriggs. *Essentials of Polysomnography*. 3rd ed. Jones & Bartlett Learning Carrollto, Texas, 2020.

Aatif M. Husain. *Illustrated Manual of Clinical Evoked Potentials*. 1st ed. 2018.

Resources Other

a. American Electroencephalography Society Guidelines in EEG and Evoked Potentials.
b. Journal of Clinical Neurophysiology, Volume 3, Supplement 1, (2) 131-169 Published by Raven Press, New York, 1986.
c. American Society Clinical Neurophysiology Guideline 9A: Guidelines on Evoked Potentials - ACNS (https://www.acns.org/pdf/guidelines/Guideline-9A.pdf)
d. Guidelines and Consensus Statements | American Clinical Neurophysiology Society - ACNS (https://www.acns.org/practice/guidelines/)

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