NEURODIAGNOSTIC TECHNOLOGY

CURRICULUM: Curriculum

The foundation of our curriculum is based on the courses developed by ASET- the national society representing the neurodiagnostic profession.

EEG 200 Fundamentals of Neuroanatomy

An introduction to the structure and functions of the Nervous System. Course content includes basic terms related to the anatomical position, direction, body regions and body planes. The bony structure of the skull are presented as well as specific structures and functions of the Nervous System including the brain, brainstem, spinal cord, cranial nerves and blood supply. An introduction to the neurological exam is also included. Topics are meant to provide basic knowledge needed to carry out EEG procedures and will create a solid foundation for advancing to more in-depth Neuroanatomy courses.

EEG 201 Testing Procedures and Terminology

This course introduces learners to the field of Neurodiagnostic Technology by providing descriptions of Neurodiagnostic testing procedures and describing the profession’s Scope of Practice. The terminology presented in this course is meant to provide a solid foundation for building a medical vocabulary and includes assignments and handouts for general terms plus those related to patient charting, signs, symptoms, accepted abbreviations, infection control, neurological diseases and other types of diagnostic testing. Specific terms used to describe EEG waveforms and patterns will also be a major focus.

EEG 202 Electrodes, Electrode Placement and Application

This course provides information on how to accurately measure and apply electrodes according to the International 10-20 System of Electrode Placement. It introduces learners to electrode nomenclature, electrode types, and their composition, as well as appropriate electrode disinfection methods. Steps for electrode application are described and illustrated with consideration to skin preparation, impedances, skin safety, and placement modification needs. Proven techniques to achieve secure and accurate electrode placement are presented using collodion and paste application methods. Pointers on how to avoid common errors are addressed along with steps to achieve success with pediatric and neonatal populations.

EEG 203 Fundamentals of EEG and Patient Care

PREREQUISITE(S): EEG 200, 201 and 202

This course explores the important discoveries and historical contributions that led to the development and use of EEG as an important diagnostic tool. Other topics related to fundamental patient care for the purpose of promoting patient safety and professional competence. Professional competence is addressed using the ASET National Competency Skill Standards for Performing and Electroencephalogram. Learners are also presented with ways to establish professional rapport, maintain patient privacy standards, and use appropriate steps to identify and address the physical needs of the patient. This patient-centered focus includes understanding the Neurodiagnostic professional’s role in the health care delivery system, as well as responsibilities relating to patient safety practices, such as infection prevent, seizure precautions, first aid, and emergency preparedness. Vital signs are discussed in order to aid the learner in identifying a patent in distress or in need of medical attention.

EEG 204 Digital EEG Concepts and Electrical Safety

The primary purpose of this course is to familiarize Neurodiagnostic professionals with the basic principles of electricity and electrical safety. Information is presented with an emphasis on profession-specific risks related to current flow, grounding, and factors contributing to electrical injury. This course will also introduce the learner to key concepts of
digital technology and how digital EEG instruments record and display EG and other physiological signals. The learner will become familiar with common computer terminology, as well as features and settings specific to Neurodiagnostic equipment

**EEG 205 Normal Adult EEG, Normal Variants & Drug Effects**

PREREQUISITE(S): EEG 200, 201 and 202

This course explores the neurophysiological basis of the EEG. Learners are presented with information about neurons and how these specialized cells generate brain waves. Normal EEG patterns found in the waking and sleep states are identified. Assignments focus on descriptive EEG terms, waveform descriptions, and features that promote the visual analysis of EEG. Information related to medicate effects on the EEG is also provided.

Normal EEG variants are a key component to this course, such as POSTS, Mu, Lambda, Phantom Spike & Wave, etc. Learners will be assigned work that will enhance their pattern recognition skills.

Required text:

**EEG 206 Instrumentation Part I**

PREREQUISITE(S): 200,201,202,203,204 AND 205

This course provides a comprehensive foundation in subjects related to the EEG instrument. Lessons include topics on basic electronic components of the electroencephalograph. Learners will gain an understanding about the appropriate use of amplifier settings, such as filters, sensitivity, and chart speeds, to refine the EEG recording. Various types of montages are described, as well as calibration methods, system and other reference selections, and permissible post-acquisition setting changes. A brief introduction to polarity is provided.

**EEG 207 INSTRUMENTATION PART 2**

PREREQUISITE(S): 200,201,202,203,204 AND 205

This course will familiarize the technologist with technical skills related to waveform analysis and polarity. Instrumentation topics will be further explored to include techniques related to improving recording quality, such as recording annotations, considerations for performing activation procedures (hyperventilation & photic stimulation ), as well as challenges to bedside and Electrocerebral Inactivity (ECI) recordings. Topics related to daily lab management are also introduce

**EEG 208 ARTIFACTS IDENTIFICATION AND TROUBLESHOOTING**

PREREQUISITE(S): EEG 200, 201, 202,203, 204, AND 205

This course is designed to provide skills in recognizing physiological and non-physiological artifacts. Samples of both common and unusual artifacts seen in EEG recordings are provided. There is a focus on troubleshooting ways to eliminate the source artifact or place monitors to help decipher artifacts from cerebral activity. A brief review on impedance and common mode rejection (CMR) is provided, as well as on the role of these factors in the presence and elimination of artifacts in included.

**EEG 209 EEG IN EPILEPSY**

PREREQUISITE(S): EEG 200,201,202,203,204,205,206,207 and 208

This course is designed to provide the skills in recognizing epileptiform EEG patterns associated with clinical and subclinical seizures. The resources will provide learners with a thorough understanding of the International Classification of Seizures and information about clinical manifestations and drug and other treatments.
EEG 210 EEG IN NEUROLOGICAL DISORDERS
PREREQUISITE(S): EEG 200,201,202,203,204,205,206,207 and 208

The goal of this course is to familiarize the Neurodiagnostic professional with the diagnostic process used by physicians to evaluate patients with neurological disorders. This includes common signs and symptoms and EEG patterns associated with neurological disorders. Other types of diagnostic procedures will also be presented.

EEG 211 EEG IN PEDIATRIC PATIENTS AND NEONATES
PREREQUISITE(S): EEG 200,102, 202, 203, 204,205, 206, 207, AND 208

The goal of this course is to familiarize the Neurodiagnostic technologist with best methods for performing neonatal and pediatric EEG procedures. Topics include electrode placement (EEG and other physiological variables) and age-appropriate recording methods. Terms used to describe the EEG of children and neonates, as well as ways to recognize specific normal and abnormal pediatric EEG patterns, is a major focus.

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CLINIC I- EEG LAB
PREREQUISITE(S): EEG 202

In this course the program director demonstrates the 10/20 system and students then practice the system on mannequin heads. Students progress to practicing head measurement on each other and then learn how to apply electrodes and how to record EEG data.

CLINIC II- The EEG CLINICAL PRACTICUM.
PREREQUISITE(S): EEG 200-211 AND EEG LAB

During the clinical practicum course, students are ready to begin performing EEGs on patients. They are introduced to the Neurodiagnostic Department’s protocols and allowed to shadow an EEG tech during the first two weeks. Students then may start measuring patient heads, applying electrodes and collecting the EEG data under the supervision of a tech preceptor.

INTRODUCTION TO ADDITIONAL MODALITIES
(including EP, NCS, IOM, LTM and PSG)

INTRODUCTORY I

Introductory Courses in EP, NCS, LTM, IOM and PSG.

The introductory courses are designed to provide the basic understanding of additional NDT modalities. Students gain an introductory level of competence but will not have the knowledge and skills needed to perform Evoked Potentials, Polysomnography, Nerve Conduction Studies, Intraoperative Monitoring or Long Term Monitoring. Graduates of the program will need to pursue additional study in order to become competent to perform on an advanced level. Students who complete the EEG competencies early may request additional time in any of the other modalities to gain additional knowledge.