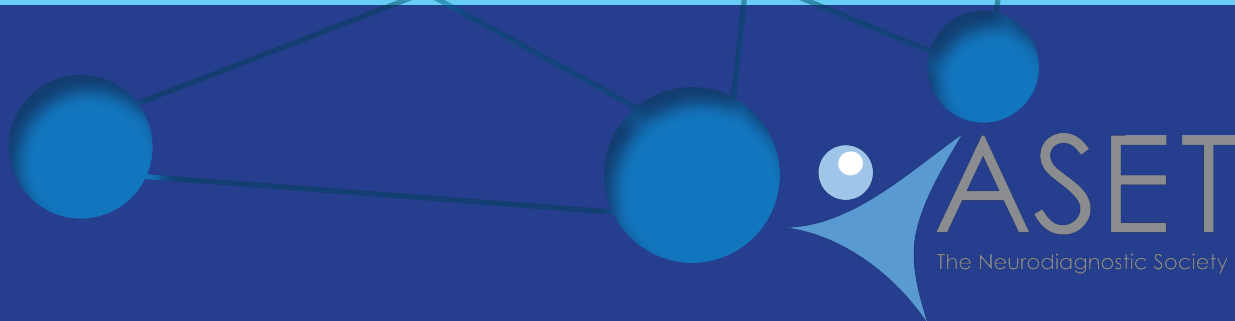




Study Guide for EEG Examination



Study Guide for EEG Examination

THE REGISTRATION EXAMINATIONS FOR EEG TECHNOLOGISTS ARE COMPUTER-BASED. EXAMS CONSIST OF 200 MULTIPLE-CHOICE QUESTIONS AND TESTING TIME OF UP TO FOUR (4) HOURS.

Topics for exam preparation included in this Study Guide:

- I. Patient History
- II. Common Neurological Disorders
- III. Patient Care and Preparation
- IV. EEG Instrumentation
- V. EEG Recording & Concepts
- VI. Procedural Considerations
- VII. Troubleshooting
- VIII. Pattern Recognition & Clinical Correlation



Online courses, webinars, and publication resources are available for purchase through the [ASET online store](#) or by calling 816-931-1120 ext. 102. Journal and Newsletter articles are available for free for ASET members. For non-members, journal articles are available for purchase through the publisher, [Taylor & Francis - The Neurodiagnostic Journal](#). Newsletter items may be available by request through info@aset.org.

ABRET recognizes ASET as a leader in neurodiagnostic education and a resource for technologists. The Study Guide for EEG Examination was created to provide technologists with targeted resources that are available through ASET when preparing for the ABRET EEG board examinations. The Study Guide is not endorsed by ABRET and does not attempt to include all required material necessary for exam preparation.

For the ABRET candidate handbook, eligibility requirements and more information:
<http://abret.org/candidates/credentials/eeeg/>

ELECTROENCEPHALOGRAPHIC TECHNOLOGIST EXAM STUDY GUIDE

I. Patient History	Study Resources Available Through ASET:
A. Patient history and the medical record	• Online course: EEG 201 Testing Procedures & Terminology; Lesson 4: Elements of a Patient History – The Medical Record and Lesson 5: Medical Record Terms and Acceptable Abbreviations • Journal 50(1): Technical Tips: What Doctors Expect from Technologists. <i>Patti Baumgartner, R. EEG/EP T., CNIM, BA</i> • Journal 56(4): ACNS Guideline 7: Guidelines for EEG Reporting • ASET News 32(3): Patient History Taking. <i>Lucy Sullivan, R. EEG T., CLTM</i>
B. Medical terminology	• Online course: EEG 201 Testing Procedures & Terminology • Publication: Q&A Flashcard Study System for Standardized Adult Critical Care Terminology • Webinar: Update on EEG Descriptors and Terms (Live webinar scheduled for 11/15/17) • ASET News 34(2): Tech Tips, Medical Abbreviations, June 2010.
C. Medications	• Webinar: Medication Effects on EEG and AED Updates. <i>Patricia Crumrine, MD</i>
D. Neurologic examination	• Online course: EEG 201 Testing Procedures & Terminology; Lesson 12 – The Neurological Exam • Webinar: Neurological Assessments. <i>Elizabeth Mullikin, R. EEG/EP T., CNIM, MPA, MA, MNM</i>
E. Other diagnostic procedures (MRI, PET, etc.)	• Online course: EEG 201 Testing Procedures & Terminology; Lesson 5: Medical Record Terms and Acceptable Abbreviations, Lesson 7: Neuro Terms - Diagnostic Test and Procedures
F. HIPAA	• United States Department of Health and Human Services, Office for Civil Rights-HIPAA. www.hhs.gov/ocr/hipaa • Online course: EEG 203 Fundamentals of EEG & Patient Care • Webinar: HIPAA Compliance for Equipment: What Does this Mean for You? <i>Simon Griffin, BSC</i>



II. Common Neurologic Disorders

Study Resources Available Through ASET:

A. Neuroanatomy	• Online course: EEG 200: Fundamentals of Neuroanatomy • Extended Webinar: Neuroanatomy Basics
B. Neurophysiology	• Online course: EEG 200: Fundamentals of Neuroanatomy
C. Neuropathology	• Online course: EEG 210: EEG in Neurological Disorders
D. Infections	• Online course: EEG 210: EEG in Neurological Disorders • Publication: EEG Clinical Correlations: Infectious, Vascular, & Structural Disorders, 3rd Ed. • Publication: Handbook of ICU EEG Monitoring. <i>LaRoche</i>
E. Headaches	• Online course: EEG 210: EEG in Neurological Disorders
F. Head Injury	• Online course: EEG 210: EEG in Neurological Disorders • Webinar: Traumatic Brain Injury & Seizures. <i>Lawrence Hirsch, MD</i> • Webinar: Concussion: What We Know Now and Why It Changes Things. <i>Janet Kent, MD</i> • ASET News 37(4): Tech Tips: Emergency Neurological Life Support (ENLS). <i>Lucy Sullivan, R. EEG T., CLTM</i> • Publication: Handbook of ICU EEG Monitoring. <i>LaRoche</i>
G. Psychiatric disorders	• Online course: EEG 201 Lesson 8 – Neuro Terms – Operative, Therapeutic and Psychiatric Terms • Publication: EEG Clinical Correlations: Coma, Cerebral Death, Personality Disorders, & the Aging Patient, 3rd Ed.
H. Seizures and classifications	• Online course: EEG 209 EEG & Clinical Correlations in Epilepsy and LTM 102: Seizures • Publication: EEG Clinical Correlations: Epilepsy, 3rd Ed. • Publication: Q&A Flashcard Study System for Standardized Adult Critical Care Terminology • Publication: Handbook of ICU EEG Monitoring. <i>LaRoche</i> • Publication: Handbook of EEG Interpretation. <i>Tatum</i> • Webinars: CLTM Board Prep Resources. <i>Jennifer Vierkant, R. EEG/EP T., CLTM, RPSGT</i>; Classification of Pediatric Seizures. <i>Cale Wilcox, R. EEG T., CLTM</i>; Pediatric Syndromes. <i>Susan Arnold, MD</i>; Pediatric Intractable Seizures. <i>Pat Trudeau, R. EEG T., CLTM</i>; Non-Epileptic Seizures. <i>Tanvir Syed, MD</i>
I. Toxic and metabolic disorders	• Online course: EEG 210: EEG in Neurological Disorders • Publication: EEG Clinical Correlations: Infectious, Vascular, & Structural Disorders, 3rd Ed.
J. Tumors	• Online course: EEG 210: EEG in Neurological Disorders • Webinar: Interactive EEG Pattern Recognition. <i>Mary Ellen Wells, R. EEG T., RPSGT, R.NCS.T., Ph.D.</i>
K. Vascular Disease	• Online course: EEG 210: EEG in Neurological Disorders • Publication: EEG Clinical Correlations: Infectious, Vascular, & Structural Disorders, 3rd Ed. • Webinar: Neurological Care of Stroke Patients. <i>Yafa Minazad, DO</i>
L. Degenerative diseases	• Online course: EEG 210: EEG in Neurological Disorders

III. Patient Preparation and Care		Study Resources Available Through ASET:
A. Patient safety	• Online course: EEG 203: Fundamentals of EEG & Patient Care • Joint Commission on Accreditation for Healthcare Organizations. “National Patient Safety Goals 2014”. www.jcaho.org • Related MSDS/OSHA standards: www.osha.gov • Publication: Policies & Procedures for the Neurodiagnostic Department: Safety	
B. International 10-20 system for electrode placement	• Online course: EEG 202: Electrodes, Electrode Placement, and Application Methods • ASET News 33(4): Tech Tips – Electrode Nomenclature. <i>Lucy Sullivan, R. EEG T., CLTM</i> • Journal 56(4): ACNS Guideline 2: Guidelines for Standard Electrode Position Nomenclature • Publication: Neurodiagnostic Electrodes	
C. Electrode placement	• Online course: EEG 202: Electrodes, Electrode Placement, and Application Methods • Journal 56(4): ACNS Guideline 2: Guidelines for Standard Electrode Position Nomenclature • Publication: Neurodiagnostic Electrodes	
D. Electrode application	• Online course: EEG 202: Electrodes, Electrode Placement, and Application Methods • Journal 51(3): Technical Tips: Electrode Application and Preventing Skin Breakdown Techniques. <i>Sellers, et al.</i> • Journal 30(2): Tech Tips: Paste Application on Neonates. • Journal 56(4): ACNS Guideline 1: Minimum Technical Requirements for Performing Clinical EEG. • ASET Best Practices Statement: Skin Safety During EEG Procedures • Publication: Neurodiagnostic Electrodes	
E. Infection Control	• Online course: EEG 202: Electrodes, Electrode Placement, and Application Methods • Webinar: Infection Control. <i>Nancy Kristo Scott, R. EEG/EP T., R.NCS.T., RPSGT, CNIM, BS</i> • ASET News: Tech Tips: Healthcare Personnel Attire Outside the OR & Infection Prevention. <i>Lucy Sullivan, R. EEG T., CLTM</i> • Journal 53(4): Infection Prevention: 2013 Review and update for NDT technologists. <i>Scott NK</i> • Publication: Policies & Procedures for the Neurodiagnostic Department: Infection Control Guidelines	

IV. EEG Instrumentation		Study Resources Available Through ASET:
A. Electrical safety	• Online course: EEG 204: Digital EEG Concepts & Electrical Safety • Webinar: Basic EEG Electrical Concepts and Safety - <i>Brett Netherton, CNIM, MS</i> • Publication: EEG Instrumentation	
B. Characters of the differential amplifier	• Online course: EEG 206: Instrumentation Part I Differential Amplifier, Montage Design & Filters • Webinar: Understanding Filters: Concepts and Useful Mental Images. <i>Brett Netherton, CNIM, MS</i> • Publication: EEG Instrumentation	
C. Digital instrumentation	• Online course: EEG 204: Digital EEG Concepts & Electrical Safety • Journal 32(4): The Practical Guide to Digital EEG. <i>Gorney</i> • Journal 56(4): ACNS Guideline 4: Recording Clinical EEG on Digital Media • Publication: EEG Instrumentation	

V. EEG Recording & Concepts	Study Resources Available Through ASET:
A. ACNS Guidelines	• Journal 56(4): Guidelines 1-7
B. Recording strategies (montage selection, parameter changes)	• Online course: EEG 206: Instrumentation Part 1 Differential Amplifier, Montage Design & Filters • Online course: EEG 207: Instrumentation Part 2 Waveform Analysis & Polarity • Journal 47(1): EEG Reviewing/Recording Strategy. <i>Scott Bearden, R. EEG/EP T., CNIM</i> • Journal 54(2): Tech Tips: Beyond the Double Banana. <i>Mary Spalding, R. EEG/EP T., CLTM, FACNS and Louis Giron Jr., MD</i> • Journal 56(4): ACNS Guideline 1: Minimum Technical Requirements for Performing Clinical EEG. • Journal 56(4): ACNS Guideline 3: A Proposal for Standard Montages to be Used in Clinical EEG • Journal 56(4): ACNS Guideline 5: Minimum Technical Standards for Pediatric EEG
C. Polarity and localization	• Online course: EEG 207: Instrumentation Part 2 Waveform Analysis & Polarity • Journal 45(4): Tech Tips: Polarity and Localization. <i>Martha Coyne, R. EEG/EP T., CNIM</i> • Journal 33(2): Tech Tips: Eye Movement Monitoring. <i>Lucy Sullivan, R. EEG T., CLTM</i>
D. Sensitivity and filter/time constant settings	• Online course: EEG 206: Instrumentation Part 1 Differential Amplifier, Montage Design & Filters • Online course: EEG 207: Instrumentation Part 2 Waveform Analysis & Polarity • Journal 57(1): Dimensional Analysis: An Alternative Method for Converting between Interrelated Units of both Timebase and Sensitivity in EEG. <i>Todd Ham, R. EEG T., CLTM</i>
E. Waveform calculations (amplitude, voltage, duration, frequency, paper speed)	• Online course: EEG 206: Instrumentation Part 1 Differential Amplifier, Montage Design & Filters • Online course: EEG 207: Instrumentation Part 2 Waveform Analysis & Polarity • Journal 49(1): BTechnical Tips: Calculating Frequency & Duration in Digital EEG. <i>Linda Kelly R. EEG/EP T., R.NCST., BS</i> • ASET News 31(2): Calculating Frequency, Duration, Amplitude, and Voltage Using a Legend. <i>Bill Byrum, MBA, R. EEG/EP T., CNIM</i> • Journal 57(1): Dimensional Analysis: An Alternative Method for Converting between Interrelated Units of both Timebase and Sensitivity in EEG. <i>Todd Ham, R. EEG T., CLTM</i>
F. Activation procedures and techniques	• Online course: EEG 207: Instrumentation Part 2 Waveform Analysis & Polarity • ASET News 40(4): Hyperventilation: A Closer Look. <i>Todd Ham, R. EEG T., CLTM, BS</i> • Journal 56(4): ACNS Guideline 1: Minimum Technical Requirements for Performing Clinical EEG. • Publication: EEG Recording Techniques & Activation Procedures, 3rd Edition
G. Artifact identification and monitoring	• Online Course: EEG 208: Artifacts Identification, Troubleshooting, & Drug Effects. • Journal 50(2): Waveform Window #17: EEG Artifacts. <i>Bendyna et al.</i> • Journal 33(2): Tech Tips: Eye Movement Monitoring. <i>Lucy Sullivan, R. EEG T., CLTM</i> • Journal 55(1): Waveform Window #29: Fact or Artifact. <i>Carol Riley, R. EEG/EP T., CNIM, RPSGT</i> • Journal 56(3): Waveform Window #37: Fact or Artifact, 2nd Ed. <i>Carol Riley, R. EEG/EP T., CNIM, RPSGT</i> • Publication: EEG Recording Techniques & Activation Procedures, 3rd Edition • Publication: EEG Artifacts

VI. Procedural Considerations	Study Resources Available Through ASET:
A. Communication with the patient	• Online course: EEG 203 Fundamentals of EEG & Patient Care
B. Age-specific considerations	• Online course: EEG 211: EEG in Pediatric Patients and Neonates • Journal 56(4): ACNS Guideline 5: Minimum Technical Standards for Pediatric EEG • Publications: Pediatric EEG, 2nd Ed. and Neonatal EEG
C. Contraindications to activation	• Publication: EEG Recording Techniques & Activation Procedures, 3rd Edition
D. Effects of medications on recording and patients	• Online course: EEG 208: Artifacts Identification, Troubleshooting, & Drug Effects. • Online course: EEG 205: Normal Adult EEG, Normal Variants, & Drug Effects
E. Coma and altered mental status	• Online course: EEG 210: EEG in Neurological Disorders • Webinar: Coma and EEG. <i>Nikesh I. Ardeshta, MD, MS</i> • ASET News 37(4): Tech Tips: Emergency Neurological Life Support (ENLS). <i>Lucy Sullivan, R. EEG T., CLTM</i> • Publication: EEG Recording Techniques & Activation Procedures, 3rd Edi
F. Basic cardiac rhythms	• Webinar: EKG Recognition for NDT and PSG Technologists. <i>Beth Ann Payne, RPSGT, RRT, BS</i>



VII. Troubleshooting	Study Resources Available Through ASET:
A. Troubleshooting	• Online course: EEG 208: Artifacts Identification, Troubleshooting, & Drug Effects. • Publication: EEG Instrumentation
B. Electrographic correlates	• Online course: EEG 209 EEG & Clinical Correlations in Epilepsy and LTM 102: Seizures • Online course: EEG 210: EEG in Neurological Disorders • Publication: EEG Clinical Correlations: Volume Series Set, 3rd Ed.
C. Selection of recording and parameters	• Online course: EEG 206: Instrumentation Part I Differential Amplifier, Montage Design & Filters • Journal 56(4): ACNS Guideline 1: Minimum Technical Requirements for Performing Clinical EEG • Journal 56(4): ACNS Guideline 3: A Proposal for Standard Montages to be Used in Clinical EEG
D. Use of filters	• Online course: EEG 206: Instrumentation Part I Differential Amplifier, Montage Design & Filters
E. Waveform analysis and identification	• Online course: EEG 207: Instrumentation Part 2 Waveform Analysis & Polarity • Publication: Handbook of EEG Interpretation. <i>Tatum</i>
F. Measurements of frequency, voltage and duration	• Journal 49(1): Technical Tips: Calculating Frequency & Duration in Digital EEG, <i>Linda Kelly R. EEG/EP T., R.NCST., BS</i> • ASET News 31(2): Calculating Frequency, Duration, Amplitude, and Voltage Using a Legend. <i>Bill Byrum, MBA, R. EEG/EP T., CNIM</i>
G. Monitoring techniques	• Journal 56(4): ACNS Guideline 1: Minimum Technical Requirements for Performing Clinical EEG • Publication: EEG Recording Techniques and Activation Procedures
H. Identifying clinical events	• Publications: EEG Clinical Correlations Volume Series Set, 3rd Ed. • Publication: Handbook of ICU EEG Monitoring. <i>LaRoche</i> • Publication: Handbook of EEG Interpretation. <i>Tatum</i>
I. Non-standard montages and electrode placements	• Journal 54(2): Tech Tips: Beyond the Double Banana. <i>Mary Spalding, R. EEG/EP T., CLTM, FACNS and Louis Giron Jr. MD</i> • Journal 47(3): Technical Tips: Alternative Reference Electrode Placements. <i>Maria DeBurgo, R. EEG T.</i> • Journal 53(1): Overview of Using T1/T2 and 10-10 Subtemporal Electrode Chains for Localizing EEG Abnormalities. <i>Susan Feravich R. EEG T., CLTM, BS and Crystal Keller, R. EEG T., CLTM, BA</i> • Journal 56(4): ACNS Guideline 3: A Proposal for Standard Montages to be Used in Clinical EEG
J. Non-standard activation procedures	• Publication: EEG Recording Techniques and Activation Procedures

VIII. EEG Pattern Recognition	Study Resources Available Through ASET:
A. Normal adult EEG	• Online course: EEG 205: Normal Adult EEG, Normal Variants, & Drug Effects • Publication: EEG Normal Patterns & Variants, 2nd Ed. • Publication: Handbook of EEG Interpretation. <i>Tatum</i> • Publication: EEG on DVD – Adult: An Interactive Reading Session, 2nd Ed. <i>Brenner and Scheuer</i>
B. Normal pediatric EEG	• Online course: EEG 211: Pediatric and Neonatal EEG • Journal 52(2): EEG Maturation: Viability through Adolescence. <i>Terri Scraggs, R. EEG T., BA</i> • Journal 56(4): ACNS Guideline 5: Minimum Technical Standards for Pediatric EEG • Publication: Pediatric EEG, 2nd Ed. • Publication: EEG on DVD – Pediatric: An Interactive Reading Session. <i>Nordli</i>
C. Normal neonatal EEG	• Online course: EEG 211 Pediatric & Neonatal EEG • Journal 45(1): Review of Neonatal EEG. <i>Aatif Husain, MD</i> • Journal 52(2): EEG Maturation: Viability through Adolescence. <i>Terri Scraggs, R. EEG T., BA</i> • Journal 56(4): ACNS Guideline 5: Minimum Technical Standards for Pediatric EEG • Publication: Neonatal EEG
D. Abnormal EEG (adult/pediatric)	• Online course: EEG 211 Pediatric & Neonatal EEG • Webinars: EEG Case Presentations with Imaging. <i>Mark Stecker, MD, PhD</i>; EEG Show & Tell. <i>Selim Benbadis, MD</i>; Interactive EEG Pattern Recognition. <i>Mary Ellen Wells, R. EEG T., RPSGT, R.NCS.T., PhD</i>; Pattern Recognition: How not to read an EEG. <i>William Tatum, MD</i>; Record Review Sessions 1, 2, and 3 with <i>Richard Brenner, MD</i>; Neonatal Case Presentations, <i>Faye Mc Nall, R. EEG T., Med</i>; Pediatric Case Presentations, <i>Cale Wilcox, R. EEG T., CLTM and Susan Arnold MD</i> • Journal 45(1): Review of Neonatal EEG. <i>Aatif Husain, MD.</i> • Journal 52(1): EEG in the Elderly. <i>Petra Davidson, R. EEG T., BS and Keith Davidson, BA</i> • Publication: Handbook of EEG Interpretation. <i>Tatum</i> • Publication: EEG on DVD – Adult: An Interactive Reading Session, 2nd Ed. <i>Brenner and Scheuer</i> • Publication: EEG on DVD – Pediatric: An Interactive Reading Session. <i>Nordli</i>
E. Normal variants	• Online course: EEG 205: Normal Adult EEG, Normal Variants, & Drug Effects • Publication: EEG Normal Patterns & Variants, 2nd Ed.
F. Sleep patterns	• Webinar: Arousal from Sleep: The neuron to the waveform. <i>Patrick Sorenson, MA, RPSGT</i> • Journal 46(1): Basic Anatomy and Physiology of Sleep. <i>Major Suzette Izac, MS, R. EEG T.</i> • Publication: Handbook of EEG Interpretation. <i>Tatum</i>
G. Correlating patient behaviors	• Journal 27(4): Semiology: Witness to a Seizure – What to Note and How to Report. <i>James W. Jordan, MD</i>



ASET's Core EEG Curriculum

An initiative to grow a qualified workforce and ensure a minimum education standard for Neurodiagnostic Technologists.

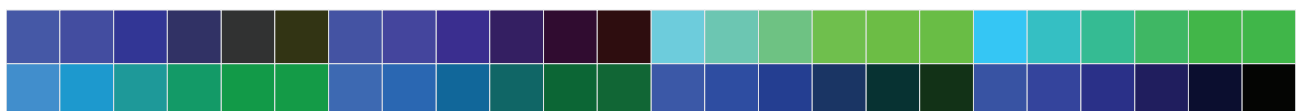


EEG 200: Fundamentals of Neuroanatomy
EEG 201: Testing Procedures & Terminology
EEG 202: Electrodes, Electrode Placement, & Application Methods
EEG 203: Fundamentals of EEG & Patient Care
EEG 204: Digital EEG Concepts & Electrical Safety
EEG 205: Normal Adult EEG, Normal Variants, & Drug Effects
EEG 206: Instrumentation Part I Differential Amplifier, Montage Design & Filters
EEG 207: Instrumentation Part 2 Waveform Analysis & Polarity
EEG 208: Artifacts Identification and Troubleshooting
EEG 209: EEG in Epilepsy
EEG 210: EEG in Neurological Disorders
EEG 211: EEG in Pediatric Patients and Neonates
EEG 212: Final Review and Practice Exam

*Our aim is to promote patient safety by providing affordable, accessible online coursework that allows individuals standardized training in order to achieve **professional competence** in the field of Neurodiagnostic Technology.*

■ At its August 16, 2016 annual meeting, the ASET Board of Trustees voted unanimously to adopt the position statement on “**Core Curriculum as Education Pathway to Grow a Qualified Workforce.**”

■ ASET recommends completion of the **ASET 12-course online EEG Core Curriculum** as a minimum for those entering the field through on-the-job training.



For more information on ASET's new EEG core curriculum contact Maureen Carroll, ASET Online Education Developer, at maureen@aset.org or 816.931.1120 ext. 104

View the Position Statement on the ASET website (www.aset.org) and click on the Best Practices tab.

To order the ASET resources referenced in this study guide such as online courses, webinars, and publication study resources, please visit www.aset.org/store or call 816.931.1120. Journal and Newsletter resources can be accessed for free by ASET Members at www.aset.org/publications.



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