



---

AMERICAN SOCIETY OF  
ANESTHESIA TECHNOLOGISTS  
AND TECHNICIANS

# Anesthesia Technology NCE Handbook

This handbook provides information that you will need to register for the Anesthesia Technology National Certification Examination (NCE), including eligibility requirements, examination policies, and an examination content outline. Be sure to keep this handbook after you have registered for the examination; you may need to refer to it later.

7044 South 13th Street, Oak Creek, WI 53154-1429

[certification@asatt.org](mailto:certification@asatt.org) • Phone: 414-908-4942 • Fax: 414-768-8001

## CERTIFICATION

The purpose of the NCE is to assess, evaluate and certify the anesthesia technologist. Through certification ASATT can:

1. Formally recognize individuals who have met the educational standards set forth by the ASATT by satisfactorily completing a program which is accredited or approved by the Committee on Accreditation for Anesthesia Technology Education. (CoA-ATE)
2. Advance a nationally recognized standard of requisite skills and knowledge required of the certified anesthesia technologist.
3. Encourage professional growth, patient safety and enhanced care in the practice of anesthesia technology by ensuring that they have acquired the necessary skills and knowledge.

## TESTING AGENCY

The ASATT has contracted with Scantron to assist in the development, administration, scoring, and analysis of the NCE. Scantron services include the reporting of scores to examinees, anesthesia technology programs, and the ASATT Headquarters.

## STATEMENT OF NONDISCRIMINATION

The ASATT and Scantron do not discriminate among candidates based on age, gender, race, color, sexual orientation, religion, national origin, disability, or marital status.

## ABOUT THE ASATT EXAMINATIONS

This certification examination is designed to test a well-defined body of knowledge representative of entry into practice of the discipline. Successful completion of the examination verifies broad-based knowledge in the discipline being tested. The scope of the certification examination credential is in part determined by a professional practice analysis (PPA).

The analysis involves surveying practitioners in current practice to identify the knowledge, skills, and abilities that

anesthesia technology professionals routinely perform and are considered important to safe practice. Each edition of the certification examination is constructed in accordance with content that coincides with the educational outline and practical domains that are delineated by tasks considered important through the PPA. The educational content outline, as set forth by ASATT, is upheld and enforced by the CoA-ATE through the educational entities that have been reviewed and/or accredited.

The ASATT National Certification Examination. Committee then determines a number of test items with variable cognitive complexity. Specifications are developed to represent tasks that are performed in practice. The examination is developed through a combined effort of qualified content experts and testing professionals. These volunteer individuals review the test items to ensure accuracy in content, proper citation to relevant textbooks, relevancy to practice, and appropriate formatting in accordance with good testing procedures.

This handbook provides specific information related to the technologist examination. Individuals who meet the eligibility requirements and who successfully pass the examination attain the designation Certified Anesthesia Technologist (Cer.ATT). The application can be found at [www.asatt.org](http://www.asatt.org). Check the ASATT's Website for more information.

## ABOUT ASATT

The ASATT is recognized as the national organization responsible for maintaining and raising standards for technologist education, patient care and high-level competence for Technologists and Technicians.

The community college network has developed formal education programs for this specialty, based upon curriculum supplied by the ASATT and enforced by the CoA-ATE.

A communications network for Technologist/Technicians, with common goals and aspirations, has been established to promote awareness of our discipline through the medical community.

The medical community recognizes the ASATT's commitment to excellence through acceptance and support of our national credentialing program.

The CoA-ATE is a separate entity charged with evaluating

educational programs through the process outlined by the Commission on Accreditation of Allied Health Education Programs (CAAHEP).

The ASATT is the sponsoring organization which is represented by a CAAHEP liaison, the CoA-ATE also sends a liaison.

The exam and material generated by the National Certification Examination Committee is property of the ASATT.

The members of National Certification Examination Committee serve as subject matter experts, educational resources, and consultants to the ASATT regarding program development, content and administration, including test development, test administration, scoring and analysis of examinations.

## ELIGIBILITY REQUIREMENTS

Application requirements to sit for the **NCE** include successful completion of an approved CoA-ATE program or graduation from a CAAHEP accredited educational program with an Associate degree minimum OR complete an ASATT approved advancement/recertification program.

## APPLYING FOR AN EXAMINATION

The NCE is administered via secure computerized testing at Scantron contracted assessment centers geographically distributed throughout the United States. The following steps outline the application process:

**1.** The candidate completes and submits an application (obtained from [www.asatt.org](http://www.asatt.org)) and appropriate fee when the eligibility requirements are satisfied. The ASATT reserves the right to verify information supplied by or on behalf of a candidate. An application is considered complete only if: 1) all information requested is complete 2) all information is legible and accurate 3) the candidate is eligible for the examination and 4) the appropriate fee accompanies the application.

Required information includes:

- personal information and signature
- indication of eligibility for examination via
  - copy of diploma and/or certificate of completion
- signed Transcript of Clinical Experience
- submission of the applicable fees; include ASATT membership number to establish appropriate fee.



**APPLICATIONS THAT ARE INCOMPLETE WILL BE RETURNED, ALONG WITH ANY FEE SUBMITTED MINUS A \$100 PROCESSING FEE.**

**2.** The application is processed, and a confirmation notice of eligibility is sent to the candidate within approximately two weeks. If a confirmation notice is not received within three weeks, the applicant **MUST** contact ASATT at 414-908-4942. The confirmation of a candidate's eligibility and acceptance of the application is valid for 90 days. A candidate who fails to schedule an appointment and complete the examination within the 90-day period forfeits the application and all fees paid to take the examination. A complete application and examination fee are required to reapply for the examination.

**3.** Scantron will send approved candidates a Notice to Schedule (NTS) via email, which will provide a username, password, and any additional information needed to schedule the testing appointment. Candidates may contact Scantron at 919-572-6880. Approved candidates will select a testing session from a list of available testing centers by geographic location, test date, and available seating. You must submit your test scheduling request at least four business days prior to your preferred test date. Most testing centers will have morning and afternoon testing sessions available. Scantron will do its best to accommodate the requested test site and date. Seats are filled on a first-come, first-served basis, based on test center availability, so it is to your advantage to schedule your test appointment as soon as you receive your NTS.

You will be notified of the exact test location, date, and time via a confirmation email. You must bring your printed email confirmation with you to the test site.

**4.** Candidates with Disabilities: Wheelchair access is available at 99% of testing centers.

Requests for accommodation must be submitted no later than 30 days prior to the candidate's preferred testing date.

It is recommended that the candidate scheduling request be submitted at least 45 days prior to the preferred testing date.

**5.** Center Locations go to: <https://www.scantron.com/test-site-cities/>

## APPOINTMENT CHANGES CANCELLATIONS, RESCHEDULING, AND NO-SHOWS:

**1.** You may cancel or reschedule a testing session up to four (4) business days prior to your testing appointment through the online scheduling system. A \$50 non-refundable fee will apply when you reschedule your exam appointment.

Not appearing for your testing appointment or rescheduling your exam fewer than four (4) business days before your testing appointment will count as your original testing appointment. You will be marked as a no-show candidate.

A candidate who fails to reschedule an examination within four business days of the scheduled testing session, who wishes to reschedule a second time, who appears more than 15 minutes late for an examination and cannot be seated, or who fails to report for an examination appointment may reapply for examination by paying the rescheduling fee. A new application is not required.

The examination must be rescheduled within 90 days of the date of the originally scheduled testing session.

A candidate who does not reschedule an examination within the 90-day period must reapply for examination by submitting a new application and full examination fee.

**2.** A candidate who wishes to reschedule an examination but fails to contact Scantron at least four business days prior to the scheduled testing session, or who wishes to reschedule a second time, may reapply for examination by paying the rescheduling fee to ASATT and will receive a new NTS from Scantron. A new application is not required. The examination must be rescheduled within 90 days of the date of the most recently scheduled testing session. A candidate who does not

reschedule an examination within the 90-day period forfeits the application and all fees paid to take the examination

**3.** A candidate who cancels his/her examination after confirmation of eligibility is received forfeits the application and all fees paid to take the examination.

## TEST CONTENT OUTLINE FOR THE ANESTHESIA TECHNOLOGIST EXAMINATION

The NCE is based upon the Perioperative Environment and Anesthesia Specific Topic content areas. Each of the content areas is briefly described and followed by an outline of the topics included in the area.

Major domains for Technologist examination from content outline:

I. Equipment, Instrumentation, and Technology:	44 items
II. Basic Sciences:	19 items
III. Pharmacology:	19 items
IV. Basic Principles of Anesthesia:	19 items
V. Advanced Principles:	18 items
VI. Professional Aspects:	6 items
TOTAL:	125 items

### **I. Equipment, Instrumentation, and Technology: 35% (44 items) (Recall - 18, Application - 26, Analysis - 0)**

#### **1. Anesthetic Delivery Systems**

- Demonstrate knowledge of and troubleshoot complications regarding the following anesthesia equipment:
  - high/low pressure gas sources
  - regulators/manifolds
  - flowmeters, valves, and floats
  - vaporizers
  - proportioning systems
  - pressure failure safety devices
  - fail-safe devices
  - ventilator
  - carbon dioxide absorbent
  - anesthetic circuits:
    - rebreathing
    - non-rebreathing
- Calibrate and troubleshoot pneumatic and electronic alarm devices, and sensors.

#### **2. Airway Equipment**

- Differentiate and define the function of the following airway equipment:
  - face masks
  - laryngoscope:
    - rigid
    - flexible/fiberoptic (disposable and non-disposable systems)
    - videoscope

- Endotracheal tubes:
  - laser
  - reinforced
- Endobronchial (e.g., Robert-Shaw, double lumen, Univent)
- Airways:
  - oral
  - nasal
- Laryngeal mask airways
- Jet ventilation
- Adjunct airway equipment:
  - retrograde wire
  - Eschmann catheter
  - combitube
  - Cook exchange catheter

### **3. Monitoring Devices**

- Differentiate and define the function of the following monitoring devices:
  - central nervous system:
    - intracranial pressure
    - brain function monitoring for depth of anesthesia
  - Cardiovascular
    - noninvasive hemodynamic monitoring:
      - Doppler
      - electrocardiogram
      - pulse oximetry
      - blood pressure
    - invasive hemodynamic monitoring:
      - central venous pressure
      - pulmonary artery pressure monitoring/SvO<sub>2</sub>
      - cardiac output
      - arterial pressure
  - Airway/pulmonary monitoring:
    - capnography/gas analysis (quantitative and qualitative)
    - pulse oximetry
    - arterial blood gas analysis
  - Peripheral nerve stimulator:
    - neuromuscular blockade
    - peripheral nerve block
  - Temperature monitoring:
    - internal
    - external
  - Adjunct equipment:
    - fluid/blood warmers
    - rapid infusion devices

- c. forced air warming
- d. heat and moisture exchanger
- e. blood salvaging devices
- f. transesophageal Echocardiography (TEE)
- g. intra-aortic balloon pump (IABP)
- h. ultrasound devices
- i. thromboelastogram (TEG)
- j. point of care (Glucometer, ABG, hemoglobin/hematocrit)

**II. Basic Sciences: 15% (19 items) (Recall - 8, Application - 11, Analysis - 0)**

**1. Anatomy and Physiology**

1. Describe the major function of the anatomical and physiologic features:
  - a. cardiovascular:
    1. chambers of the heart
    2. heart valves
    3. blood flow to/from the heart
    4. cardiopulmonary circulation
    5. aorta
    6. radial/ulnar
    7. femoral
    8. vena cava
    9. carotid
    10. subclavian
    11. internal/external jugular
  - b. pulmonary:
    1. pharynx
    2. larynx
    3. epiglottis
    4. vocal cords
    5. lobes of the lung
    6. tracheal/bronchial tree:
      - a. trachea
      - b. carina
      - c. main stem bronchi
    7. alveoli
    8. alveolar/capillary membrane
    9. diffusion of gases - Henry's Law of Diffusion
    10. gas transport
    11. thoracic rib cage:
      - a. sternum
      - b. ribs
      - c. xyphoid process
    12. diaphragm
    13. lung volumes

- c. nervous system:
  1. autonomic
  2. neuromuscular junction
  3. nerve conduction
  4. spinal cord
  5. identification and differentiation of the following peripheral nerves:
    - a. upper body (brachial plexus, axillary, supraclavicular, phrenic)
    - b. lower body (femoral, sciatic, peroneal and popliteal)
- d. musculoskeletal:
  1. spine
- e. endocrine:
  1. thyroid
  2. pituitary
  3. adrenal
- f. gastrointestinal:
  1. liver
  2. pancreas
- g. renal:
  1. kidney
  2. bladder

**2. Pathophysiology**

1. Identify the major features of the following pathophysiologies:
  - a. cardiovascular:
    1. dysrhythmias
    2. ischemic heart disease
    3. myocardial infarction
    4. hypertension
    5. congestive heart failure
    6. peripheral vascular disease
  - b. respiratory:
    1. asthma and COPD
    2. tuberculosis
    3. pulmonary embolism
  - c. nervous system:
    1. seizures
    2. cerebrovascular accident (CVA)
    3. dementia/Alzheimer's
  - d. musculoskeletal:
    1. arthritis
    2. malignant hyperthermia

- 3. scoliosis
- e. endocrine:
  - 1. diabetes
  - 2. thyroid storm
  - 3. pheochromocytoma
- f. hepatic:
  - 1. hepatitis
  - 2. cirrhosis
- g. renal:
  - 1. renal failure
- h. gastrointestinal:
  - 1. diaphragmatic hernia
  - 2. hiatal hernia
  - 3. gastroesophageal reflux disorder (GERD)
  - 4. pancreatitis
  - 5. bowel obstruction
- i. immune disorders:
  - 1. anaphylaxis
  - 2. AIDS/HIV
  - 3. latex allergy
- j. additional topics:
  - 1. trauma/burns/shock
  - 2. substance abuse
  - 3. organ transplants

- 3. Local Anesthetics
  - a. procaine
  - b. tetracaine
  - c. cocaine
  - d. benzocaine
  - e. EMLA
  - f. bupivacaine
  - g. lidocaine
  - h. ropivacaine
  - i. local anesthetic systemic toxicity
- 4. Muscle Relaxants
  - a. succinylcholine
  - b. pancuronium
  - c. vecuromium
  - d. rocuronium
  - e. cisatracurium
- 5. Antagonists
  - a. neostigmine
  - b. naloxone
  - c. flumazenil
  - d. physostigmine
- 6. Nonsteroidal Anti-inflammatory Drugs
  - a. Toradol
- 7. Antihypertensives
  - a. beta blockers (i.e., labetalol, esmolol)
  - b. vasodilators
  - c. nitroglycerine
  - d. nitroprusside
- 8. Antidysrhythmics
  - a. lidocaine
  - b. amiodarone
  - c. adenosine
- 9. Bronchodilators
  - a. albuterol
- 10. Diuretics
  - a. lasix
  - b. mannitol
- 11. Antacids and gastrointestinal medications
  - a. cimetidine
  - b. bicitra
  - c. reglan
- 12. Heparin
  - a. protamine
- 13. Dantrolene
- 14. Corticosteroids
  - a. hydrocortisone
  - b. dexamethasone
- 15. Magnesium Sulfate

**III. Pharmacology: 15% (19 items) (Recall - 19, Application - 0, Analysis - 0)**

**1. Identify the function and side effects of the following pharmacological agents:**

- 1. Inhalational Anesthetics
  - a. desflurane
  - b. sevoflurane
  - c. isoflurane
  - d. nitrous oxide
- 2. Intravenous Medications
  - a. Opioids:
    - 1. morphine
    - 2. fentanyl
    - 3. sufentanil
  - b. Benzodiazepenes:
    - 1. Diazepam
    - 2. Midazolam
  - c. Sedative/hypnotics:
    - 1. propofol
    - 2. ketamine
    - 3. etomidate
    - 4. dexmedetomidine

16. Oxytocin and Methergine

**IV. Basic Principles of Anesthesia: 15% (19 items) (Recall - 4, Application - 11, Analysis - 4)**

**1. Occupational Exposure Safety**

1. Comply with all safety regulations and applicable codes regarding:
  - a. occupational exposure to anesthetic agents.
  - b. electricity and electrical safety.
  - c. fire safety.
2. Assist in the preparation and set up of airway management:
  - a. standard
  - b. difficult (ASA Guidelines)

**2. Local/Regional Anesthesia**

1. Identify positioning, landmarks, and complications for the following regional blocks:
  - a. subarachnoid
  - b. epidural
  - c. combined spinal/epidural
  - d. caudal
  - e. interscalene
  - f. brachial plexus
  - g. IV regional (Bier)
  - h. ankle
  - i. wrist
  - j. digital
  - k. sciatic
  - l. femoral
  - m. popliteal
2. Identify positioning, landmarks, and complications for the following:
  - a. ultrasound guided nerve block.
  - b. nerve stimulator guided nerve block.
3. Identify appropriate IV catheter and tubing sizes in preparation and insertion of intravenous lines.
4. Differentiate between the following techniques, equipment, and complications regarding positioning:
  - a. prone
  - b. supine
  - c. lithotomy
  - d. lateral
  - e. sitting
  - f. beach chair
  - g. Trendelenburg

- h. Reverse Trendelenburg
5. Differentiate between levels of disinfection (high, intermediate, low):
  - a. processing:
    1. cleaning, decontamination and disinfection
    2. methods of sterilization
6. Differentiate between sterile and aseptic techniques.

**V. Advanced Principles: 15% (18 items) (Recall - 4, Application - 11, Analysis - 3)**

**1. Anesthetic Implications of Surgical Procedures**

1. Intra-abdominal:
  - a. intra-abdominal carbon-dioxide insufflation
  - b. fluid and temperature management
2. Chest (intra-thoracic and extra-thoracic):
  - a. one lung ventilation
  - b. cell salvaging
  - c. TEE
3. Orthopedic:
  - a. positioning
  - b. fat embolus
4. Head and neck:
  - a. shared airway
  - b. laser tubes and airway fire
5. Genital and urologic:
  - a. TURP syndrome
6. Gynecologic:
  - a. lithotomy position
7. Out of OR:
  - a. GI, MRI, pain, L&D
8. ACLS algorithms

**VI. Professional Aspects: 5% (6 items) (Recall - 6, Application - 0, Analysis - 0)**

**1. Regulatory Agencies**

1. Identify the function of the following regulatory agencies:
  - a. AABB
  - b. CLIA
  - c. DHS
  - d. OSHA
  - e. TJC
2. Identify national standards for scope of practice
3. Practice professional ethics

## FOLLOWING THE EXAMINATION

After you finish the examination, you are asked to complete a short evaluation of your testing experience. Then you will be instructed to report to the testing supervisor. Your score report will be provided to you testing supervisor.

Your score report will indicate a "pass" or "fail." Additional detail is provided in the form of raw scores. A raw score is the number of items you answered correctly. Your pass/fail status is determined by your raw score. Your score is based on 125 items.

## IF YOU PASS THE EXAMINATION

Upon the successful completion of the ASATT certification examination, you may use the designation of "Certified Anesthesia Technologist" (Cer. A.T.T.). The ASATT reserves the right to recognize publicly any candidate completing the ASATT NCE.

## IF YOU DO NOT PASS THE EXAMINATION

If you do not pass the examination, you will need to schedule another examination, submit reapplication form and the examination fee within 90 days following the failed examination. If a candidate applies for re-examination after 90 days following the failed examination, the full application and examination fee are required.

## CONFIDENTIALITY

Information about candidates for testing or renewal of certification and their test results are considered confidential however, the ASATT reserves the right to use information supplied by or on behalf of a candidate in the conduct of research. Studies and reports concerning candidates will contain no information identifiable with a candidate, unless authorized by the candidate.

## DUPLICATE SCORES REPORT

Candidates may purchase additional copies of their score reports at a cost of \$45 per copy. Requests must be submitted to ASATT, in writing, within 12 months after the

examination. The request must include the candidate's name, Social Security number, address, telephone number, date of examination, and examination taken. Submit this information with the required fee payable to ASATT. Duplicate score reports will be mailed within approximately five (5) business days after request receipt.

## APPEALS

A candidate who believes he/she was unjustly denied eligibility for examination, who challenges results of an examination, or who believes he/she was unjustly denied renewal of certification may request reconsideration of the decision by submitting a written appeal to the ASATT Board of Directors.

The candidate for certification or renewal of certification must provide convincing evidence that a severe disadvantage was afforded the candidate during processing of an application for examination or renewal of certification prior to or during administration of an examination.

The appeal must be made within 45 days of receipt of a score report or any other official correspondence related to certification or renewal of certification from the ASATT. The written appeal must also indicate the specific relief requested.

The appealing candidate is required to submit a \$100 fee with the written appeal. The fee will be refunded to the candidate if deemed justified through action of the Board of Directors.

You will receive a report of your score indicating the number of questions passed in the individual domains.

## SCORES CANCELLED BY ASATT OR SCANTRON

The ASATT and Scantron are responsible for the integrity of the scores they report. On occasion, occurrences, such as computer malfunction or misconduct by a candidate, may cause a score to be suspect. The ASATT and Scantron are committed to rectifying such discrepancies as expeditiously as possible.

The ASATT may void examination results if, upon investigation, violation of its regulations is discovered.

## RENEWAL OF CERTIFICATION

Continuing Education is essential to enable Anesthesia

Technologists to ensure personal and professional development in the rapidly changing field of anesthesia.

To retain the Certified Anesthesia Technologist designation, all individuals must document continuing education.

Recertification is achieved by accumulating 30 continuing education/contact hours by the end of the two-year recertification period. Your recertification is obligatory. You may begin to accrue continuing education units beginning January 1st of the year following your certification year.