

South Plains College -Reese Center

Course Syllabus

COURSE: RADR 2335-200 (3:3:0), Radiologic Technology Seminar (Capstone)
SEMESTER: Spring 2025
CLASS TIMES: TR, 9:30-11:30am
INSTRUCTOR: Clinton Bishop
OFFICE: SPC Reese Center, office 512B
OFFICE HOURS: M-F, 9:00-11:00am & by appointment
OFFICE PHONE: 806-716-4629
E-MAIL: cbishop@southplainscollege.edu

“South Plains College improves each student’s life.”

GENERAL COURSE INFORMATION

COURSE DESCRIPTION

This is a capstone course that focuses on the synthesis of professional knowledge, skills, and attitudes in preparation for professional licensure and employment and lifelong learning.

COURSE OBJECTIVES

The student will:

1. Evaluate the Program content areas to identify areas of strength and weakness. (C5)
2. Review all Program content areas, using study guides outlining the minimum amount of knowledge required in each area.
3. Receive individual review in those areas of major weakness, if necessary.
4. Answer detailed questions from the following subject areas (C5-7):

Ethics	Contrast Media
Medical Terminology	Radiology Physics
Computed Radiography & Digital Radiography	Radiographic Equipment & QA
Radiographic Anatomy & Physiology	Radiation Biology & Protection
Patient Care Pertinent to Radiology	Radiographic Special Procedures
Radiographic Positioning	Advanced Imaging Modalities
Medical & Surgical Diseases	Radiographic Quality
Pharmacology	

STUDENT LEARNING OUTCOMES

The student will:

1. Synthesize professional knowledge, skills, and attitudes.
2. Make entry-level, professional decisions regarding radiographic procedures to ensure diagnostic images, taking into consideration any constraints and generating possible alternatives to the routine.
3. Validate the necessity of lifelong learning to acquire recent technology and maintain professional skills.

CAPSTONE EXPERIENCE - VERIFICATION OF COMPETENCIES

RADR 2335 is identified as a Capstone Experience. The learning experience is a consolidation of the student’s educational experience; and certifies mastery of entry-level radiography competencies.

EVALUATION METHOD

The RADR 2335 Radiologic Technology Seminar students will be assessed using a combination of discipline specific examinations, mock registry exams, skills, and a comprehensive program final exam. **The comprehensive program final exam must be passed with a 75% or better to pass this course and to be eligible for the ARRT board exam.**

ACADEMIC INTEGRITY

It is the aim of the faculty of South Plains College to foster a spirit of complete honesty and a high standard of integrity. The attempt of any student to present as his or her own any work which he or she has not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offender liable to serious consequences, possibly suspension.

Cheating - Dishonesty of any kind on examinations or on written assignments, illegal possession of examinations, the use of unauthorized notes during an examination, obtaining information during an examination from the textbook or from the examination paper of another student, assisting others to cheat, alteration of grade records, illegal entry or unauthorized presence in the office are examples of cheating. Complete honesty is required of the student in the presentation of all phases of coursework. This applies to quizzes of whatever length, as well as final examinations, to daily reports and to term papers.

Plagiarism - Offering the work of another as one's own, without proper acknowledgment, is plagiarism; therefore, any student who fails to give credit for quotations or essentially identical expression of material taken from books, encyclopedias, magazines and other reference works, or from themes, reports or other writings of a fellow student, is guilty of plagiarism.

If found cheating or plagiarizing, the student's future in this program will be based on the decisions from the Allied Health Departmental Director's Committee.

BLACKBOARD

Blackboard is an e-Education platform designed to enable educational innovations everywhere by connecting people and technology. This educational tool will be used in this course throughout the semester.

The student should only access his or her own Blackboard account. Granting permission to another or accessing another student's Blackboard account is prohibited and against the Academic Integrity code.

SOCIAL MEDIA

Facebook: <https://www.facebook.com/spradtechprogram>

Instagram: <https://www.instagram.com/spradtech/>

SCANS and FOUNDATION SKILLS

Scans and foundation skills are identified for specific course objectives. A complete list explaining these skills is attached to the back of the syllabus for your information.

SPECIFIC COURSE INFORMATION

TEXT AND MATERIALS

All required textbooks from previous RADR courses may be utilized.

Accessing the Elsevier website during this course is **mandatory to complete the required mock exams.**

ATTENDANCE POLICY

SPC - Students are expected to attend all classes to be successful in a course. The student may be administratively withdrawn from the course when absences become excessive as defined in the course syllabus.

When an unavoidable reason for class absence arises, such as illness, an official trip authorized by the college or an official activity, the instructor may permit the student to make up the work missed. It is the student's responsibility to

complete the work missed within a reasonable period as determined by the instructor. Students are officially enrolled in all courses for which they pay tuition and fees at the time of registration. Should a student, for any reason, delay in reporting to a class after official enrollment, absences will be attributed to the student from the first class meeting.

Students who enroll in a course but have “Never Attended” by the official census date, as reported by the faculty member, will be administratively dropped by the Office of Admissions and Records. A student who does not meet the attendance requirements of a class as stated in the course syllabus and does not officially withdraw from that course by the official census date of the semester, may be administratively withdrawn from that course and receive a grade of “X” or “F” as determined by the instructor. Instructors are responsible for clearly stating their administrative drop policy in the course syllabus, and it is the student’s responsibility to be aware of that policy.

It is the student’s responsibility to verify administrative drops for excessive absences through MySPC using his or her student online account. If it is determined that a student is awarded financial aid for a class or classes in which the student never attended or participated, the financial aid award will be adjusted in accordance with the classes in which the student did attend/participate, and the student will owe any balance resulting from the adjustment.

SPC Radiologic Technology - Class attendance is mandatory. Students with three (3) absences will be counseled. Students are allowed five (5) absences during the spring semester. The student will be dropped from the program after exceeding five (5) absences, regardless of the student’s grade. Policies regarding absences coincide with those established for South Plains College as outlined in the SPC General Catalog.

It is extremely important that students arrive on time for class. **Tardiness** disrupts the instructor and the other students. Students who chronically arrive late will be counseled. The student should be prepared for class at the scheduled class start time. **3 tardy will equal 1 absence.**

Students with perfect attendance and two or less tardy will be awarded 2 points to their final grade at the end of the semester.

INSTRUCTIONAL METHODS

The student will receive a review of information through a series of review questions, review challenges, review games, lab review challenges, and review textbook material.

CLASS PREPARATION POLICY

Preparation for this class is the responsibility of the student. Time will not permit extensive lectures over all material that has already been covered in previous classes; therefore, the student is responsible for reviewing the material. The instructor will be available during class for questions and assistance in preparation for each test.

Information review and assessment is divided into 4 units, correlating to the ARRT content specifications:

1. Patient Care
2. Safety
3. Image Production
4. Procedures

REVIEW

If a student needs assistance with reviewing any of the information given during class or lab, the student is encouraged to make an appointment with the instructor.

CONFERENCES

If at any time a student is not satisfied with their overall performance, he/she is encouraged to schedule an appointment with the instructor. If necessary, a plan can be developed to help the students improve in their areas of weakness.

GRADING POLICY

Grades in this course will be determined using the following criteria:

Assessment Tool	Assessment Criteria	Percentage Score	Grade
MAJOR EXAMS 30%	✓ Exceptional course content knowledge & understanding	90 – 100	A
	✓ Good course content knowledge & understanding	80 – 89	B
	✓ Average course content knowledge & understanding	75 – 79	C
	✓ Unacceptable unit content knowledge & understanding	0 – 74	F
MOCK REGISTRY EXAM # 1 5%	✓ Exceptional unit content knowledge & understanding	90 – 100	A
	✓ Good unit content knowledge & understanding	80 – 89	B
	✓ Average unit content knowledge & understanding	75 – 79	C
	✓ Unacceptable unit content knowledge & understanding	0 – 74	F
MOCK REGISTRY EXAM # 2 15%	✓ Exceptional unit content knowledge & understanding	90 – 100	A
	✓ Good unit content knowledge & understanding	80 – 89	B
	✓ Average unit content knowledge & understanding	75 – 79	C
	✓ Unacceptable unit content knowledge & understanding	0 – 74	F
RADIOLOGY SKILLS 10%	✓ Exceptional unit content knowledge & understanding	90 – 100	A
	✓ Good unit content knowledge & understanding	80 – 89	B
	✓ Average unit content knowledge & understanding	75 – 79	C
	✓ Unacceptable unit content knowledge & understanding	0 – 74	F
COMPREHENSIVE PROGRAM FINAL EXAM 40%	✓ Exceptional unit content knowledge & understanding	90 – 100	A
	✓ Good unit content knowledge & understanding	80 – 89	B
	✓ Average unit content knowledge & understanding	75 – 79	C
	✓ Unacceptable unit content knowledge & understanding	0 – 74	F

Course Grade: A	90 – 100
B	80 – 89
C	75 – 79
F	0 – 74

A grade average of C (75) must be maintained in all RADR classes. Failure to do so will result in the student being dropped from the Program.

Major Exams – 30%

Major exams will be given throughout the semester following each unit or units presented. Exams will be completed electronically in the computer lab.

The following guidelines will be followed regarding **Major Exams**:

1. The student will complete the exam at the scheduled time. **Make-up exams will be at the instructor's discretion.**
2. The student must complete the exam within the allotted class time of **75 minutes**.
3. If a major exam is missed, a zero will be recorded in the gradebook for that exam.
4. A student arriving late for an exam will not be allowed to take the exam if **any** student has completed the exam and left the room. This will also count as a tardy.
5. No cell phones, smartwatches, calculators, or other electronic assistance devices are allowed during exams.
6. No hats, hoodies, beanies, headphones, earpieces, etc. may be worn during an exam.
7. Major exams will not be available to print or save. Once you have finished your exam, please review the exam. Students may review exams in the instructor's office by appointment.

Mock Registry Exams – 5% & 15%

Mock exams will be completed **on your own time** through the Elsevier website. These exams will need to be taken in an SPC Testing Center, either at the SPC Reese Center (806)716-4689, SPC Career and Technical Center (806)716-4631, SPC Downtown Center (806)716-4689, or SPC Levelland Campus (806)716-2368. Please call or email testing@southplainscollege.edu to schedule a testing time **well in advance**.

1. At least two mock exams will need to be completed. One between **January 13th-March 14th 2025** (before spring break) and one between **March 24th-May 2nd 2025** (between spring break and the final exam).
2. The student must schedule an exam time. An exam appointment is required.
3. These exams are not timed but are required.
4. These exams are graded. Failure to complete the two exams will result in a grade of zero. No late submissions will be accepted.
5. After completion of the exam, you will upload the results as an assignment in Blackboard by 11:59pm on or before the due date. The results must show the date, time, and score. In the assignment page in Blackboard, please upload an image of your results along with the testing center site.
6. These exams are meant for studying, reviewing, and to have access to several types of questions, please use these exams as a resource to prepare yourself for the ARRT board exam.

Radiology Skills – 10%

The ARRT requires the program director's signature verifying competency of major radiology skills. Students will be evaluated in the radiology lab on all mandatory competencies. The last portion of the class will be used to evaluate the student's radiology skills. Days to perform skills will be assigned during class time. Students will randomly choose the mandatory skills to be performed.

The following guidelines will be followed regarding **Radiology Skills**:

1. The student must be present at the required time.
2. The student must have the appropriate R and L markers.
3. The student must correctly position the patient for the appropriate radiographic procedure.
4. The student must correctly identify the central ray for the appropriate radiographic procedure.
5. The student must correctly identify and evaluate the appropriate radiographic image.

Comprehensive Program Final Exam – 40%

A comprehensive program final exam will be given at the end of the semester. Three hours will be allotted for the final exam which will be completed electronically in the computer lab.

The following guidelines will be followed regarding the **Final Exam**:

1. The final exam will be a comprehensive program final.
2. The final exam must be completed within the allotted time, **3 hours**.
3. A student arriving late for an exam will not be allowed to take the final exam if **any** student has completed the exam and left the room.
4. No cell phones, smartwatches, calculators, or other electronic assistance devices are allowed during final exam.
5. No hats, hoodies, beanies, headphones, earpieces, etc. may be worn during the final exam.
6. If the comprehensive program final exam is missed, a zero will be recorded in the gradebook for that exam.

THE COMPREHENSIVE PROGRAM FINAL EXAM MUST BE PASSED WITH A 75% OR BETTER TO PASS THIS COURSE AND TO BE ELIGIBLE FOR THE ARRT BOARD EXAM.

-One re-test will be given to pass the comprehensive program final exam.

-If the student requires a second attempt at the comprehensive program final exam the student must meet with the Radiologic Technology Program Director to schedule a re-take of the comprehensive final exam. The second attempt will be a different version of the exam.

-A student who passes the SECOND comprehensive final exam, with any grade higher than a 75%, may receive no higher than a 75% as the comprehensive program final exam grade.

-Failure to pass the comprehensive program final exam on one of the two attempts will require the student to repeat RADR2335 the following year. A student who fails to pass the comprehensive final exam (with two attempts) will not be eligible to sit for the ARRT board exam that year.

-It is possible to academically pass this class while failing the final exam. However, you will not be verified by the Program Coordinator through the ARRT as eligible to take the board exam if a 75% or higher is not made on the comprehensive program final exam.

ARRT & ARRT BOARD EXAM

The program coordinator will assist the students in registering for the ARRT board exam during the semester.

The “type 23” testing fee of \$225.00 added to the student’s tuition and fees will cover the cost of the ARRT board exam.

Students are **STRONGLY ENCOURAGED** to take the ARRT Board Exam as soon as possible after the completion of this course.

The student must successfully complete the radiography skills, pass the program comprehensive final exam, and complete the ethics portion of the ARRT application. Once the student has successfully completed the above, the Radiologic Technology Program Coordinator will verify via the ARRT website the student’s eligibility to take the ARRT board exam.

TEXAS MEDICAL BOARD (TMB)

The program coordinator will assist the students in registering for the TMB license.

The cost (paid by the student) for the TMB license is ~\$82.00, along with ~\$40.00 required for fingerprinting/background check.

The TMB requires graduates/applicants to take the TMB Jurisprudence Exam. The cost (paid by the student) is \$34.00. Applicants must pass with a 75% or greater and will have unlimited attempts to do so.

COMMUNICATION POLICY

Electronic communication between instructor and students in this course will utilize the South Plains College “My SPC” email system and GroupMe. Instructor will not initiate communication using private email accounts. Students are encouraged to check SPC email on a regular basis.

STUDENT CONDUCT

Students in this class are expected to abide by the standards of student conduct as defined in the SPC Student Guide and the Radiologic Technology Program Student Handbook.

Rules and regulations relating to the students at South Plains College are made with the view of protecting the best interests of the individual, the general welfare of the entire student body and the educational objectives of the college. As in any segment of society, a college community must be guided by standards that are stringent enough to prevent disorder, yet moderate enough to provide an atmosphere conducive to intellectual and personal development.

A high standard of conduct is expected of all students. When a student enrolls at South Plains College, it is assumed that the student accepts the obligations of performance and behavior imposed by the college relevant to its lawful missions, processes and functions. Obedience to the law, respect for properly constituted authority, personal honor, integrity and common sense guide the actions of each member of the college community both in and out of the classroom.

Students are subject to federal, state and local laws, as well as South Plains College rules and regulations. A student is not entitled to greater immunities or privileges before the law than those enjoyed by other citizens. Students are subject to such reasonable disciplinary action as the administration of the college may consider appropriate, including suspension and expulsion in appropriate cases for breach of federal, state or local laws, or college rules and regulations. This principle extends to conduct off-campus which is likely to have adverse effects on the college or on the educational process which identifies the offender as an unfit associate for fellow students.

Any student who fails to perform according to expected standards may be asked to withdraw.

Rules and regulations regarding student conduct appear in the current Student Guide.

CELL PHONES

Cellphones must be put away and are to be turned **OFF** or put on **silent** during scheduled class/lab periods, unless prior approval has been given from the instructor. Cell phones are to be used only outside of the classroom while class is in session. **This includes text messaging and/or internet browsing.**

Students will be dismissed from class/lab and sent home if a phone continuously rings/vibrates or if the student is discovered texting or browsing the internet. If dismissed from class, the student will receive an **absence** for the day. In case of emergencies, the student can also be reached by calling (806)716-4629 or (806)716-4628.

SPC SYLLABUS STATEMENTS (ACCOMMODATIONS)

<https://www.southplainscollege.edu/syllabusstatements/>

COURSE OUTLINE

PATIENT CARE

With at least **75%** accuracy, the student will:

1. Define the terms associated with radiologic technology and other medical imaging modalities.
2. Define the most common prefixes used in the medical field.
3. Define the most common root words used in the medical field.
4. Define the most common suffixes used in the medical field.
5. Explain the importance of ethical behavior in the allied health professions. (F8,13,17)
6. Identify acceptable ethical behavior in the allied health professions. (F8,13,17)
7. Identify the ethical and medical legal issues associated with the allied health professions. (F8,13,17)
8. Evaluate the patient's condition upon entering the radiology department. (F8-10)
9. Identify the symptoms of common emergencies encountered in a radiology department.
10. Identify the drugs and their applications that are common to radiographic procedures and emergencies commonly encountered in a radiology department.
11. Identify the biological factors that affect drug actions. (F12)
12. Identify the methods of drug administration.
13. Describe the venipuncture procedure.

14. Identify the symptoms of an adverse contrast media reaction.
15. Explain safe methods of transporting and moving patients.
16. Explain medical and surgical asepsis.

SAFETY

With at least **75%** accuracy, the student will:

1. Define all terms and units of measure related to radiation biology & protection, including but not limited to:

Air kerma	Inverse square law
Gray	Half-value layer
Sievert	Alpha particle
Becquerel	Beta particle
Dose equivalent	Positron particle
Dose equivalent formula	X-radiation
Ionization	Gamma radiation

2. Identify the possible long-term effects of radiation exposure.
3. Identify the possible somatic effects of radiation exposure.
4. Identify the possible genetic effects of radiation exposure.
5. Identify relative tissue, organ and cell radiosensitivities.
6. Identify relative dose-effect relationships.
7. Complete the mathematical calculations related to radiation protection. (F3)
8. Identify and explain the required and recommended methods of radiation protection, including time, distance and shielding.
9. Identify the recommended dose equivalent limits established for diagnostic radiography.
10. Identify the characteristics of the basic devices used for detecting and/or measuring radiation exposure.
11. Identify the characteristics of the basic devices used for personnel dosimetry in radiography.

IMAGE PRODUCTION

With at least **75%** accuracy, the student will:

1. Explain x-ray production. (F10)
2. Identify the factors that affect x-ray production.
3. Identify and describe the five x-ray/matter interactions. (F10)
4. Explain the importance of Compton and photoelectric interactions to image production. (F12)
5. Identify the factors affecting the probability of Compton and photoelectric interactions.
6. Identify the primary technical factors of radiographic exposure and discuss their function. (F12)
7. Identify the secondary technical factors of radiographic exposure and discuss their function. (F12)
8. Describe the conditions influencing exposure factor selection. (F12)
9. Identify and describe how to use filters, beam restricting devices, and grids in radiographic imaging. (F12)
10. Identify and describe the indirect method of acquiring a computed radiographic image. (F12)
11. Identify and describe the direct and indirect methods of acquiring a digital radiographic image. (F12)
12. Identify the preprocessing functions of digital imaging. (F8)
13. Identify the post-processing options of digital imaging. (F8)
14. Identify the characteristics of a diagnostic quality radiographic digital image.
15. Identify common radiographic artifacts and their cause.
16. Explain electrostatics, electrodynamics, magnetism and electromagnetism.
17. Identify series and parallel circuits. (F10)
18. Calculate voltage, resistance and/or current for a given circuit. (F3,10,12)
19. Identify the components of a basic single-phase x-ray circuit and describe their function. (F10)

20. Differentiate between single-phase; three-phase, six-pulse; three-phase, twelve-pulse and high frequency x-ray circuits.
21. Identify the components of a conventional and a digital/computed radiographic unit and describe their function. (F10)
22. Identify the components of a conventional and a digital fluorographic unit and describe their function. (F10)
23. Identify the Quality Assurance procedures and acceptable parameters for radiographic and fluorographic systems.

PROCEDURES

With at least **75%** accuracy, the student will:

1. List all of the body systems.
2. Identify the pertinent organs and explain their function of each body system.
3. Identify and explain the function of human cellular components.

With at least 75% accuracy, the student will:

1. List and describe the routine and special projections of the following anatomical structures:

Shoulder girdle and upper extremity	Digestive system
Pelvic girdle and lower extremity	Urinary system
Bony thorax	Skull and facial bones
Vertebral column	Sinuses and mastoids
Respiratory system	

2. Assess the routine and special projections of the following anatomical structures using established evaluation criteria:

Shoulder girdle and upper extremity	Digestive system
Pelvic girdle and lower extremity	Urinary system
Bony thorax	Skull and facial bones
Vertebral column	Sinuses and mastoids
Respiratory system	

3. Identify the structures demonstrated in the routine and special projections of the following anatomical structures:

Shoulder girdle and upper extremity	Digestive system
Pelvic girdle and lower extremity	Urinary system
Bony thorax	Skull and facial bones
Vertebral column	Sinuses and mastoids
Respiratory system	

With at least 75% accuracy, the student will:

1. Identify and describe features of the equipment pertinent to special procedures. (C15)
2. Describe the basic guidelines for contrast media usage.
3. Identify the basic contrast media used in:

Arteriography

GI radiography

Venography
Pneumography
Myelography

Urinary radiography
Reproductive system radiography
Arthrography

4. Explain the specialized radiographic procedures for:

Body section radiography
Image intensification
Foreign body localization
Cineradiography

Ultrasound
Computed tomography
Magnetic resonance imaging
Nuclear medicine

FOUNDATION SKILLS

BASIC SKILLS—Reads, Writes, Performs Arithmetic and Mathematical Operations, Listens and Speaks

F-1 Reading—locates, understands, and interprets written information in prose and in documents such as manuals, graphs, and schedules.

F-2 Writing—communicates thoughts, ideas, information and messages in writing and creates documents such as letters, directions, manuals, reports, graphs, and flow charts.

F-3 Arithmetic—performs basic computations; uses basic numerical concepts such as whole numbers, etc.

F-4 Mathematics—approaches practical problems by choosing appropriately from a variety of mathematical techniques.

F-5 Listening—receives, attends to, interprets, and responds to verbal messages and other cues.

F-6 Speaking—organizes ideas and communicates orally.

THINKING SKILLS—Thinks Creatively, Makes Decisions, Solves Problems, Visualizes and Knows How to Learn and Reason

F-7 Creative Thinking—generates new ideas.

F-8 Decision-Making—specifies goals and constraints, generates alternatives, considers risks, evaluates and chooses best alternative.

F-9 Problem Solving—recognizes problems, devises and implements plan of action.

F-10 Seeing Things in the Mind's Eye—organizes and processes symbols, pictures, graphs, objects, and other information.

F-11 Knowing How to Learn—uses efficient learning techniques to acquire and apply new knowledge and skills.

F-12 Reasoning—discovers a rule or principle underlying the relationship between two or more objects and applies it when solving a problem.

PERSONAL QUALITIES—Displays Responsibility, Self-Esteem, Sociability, Self-Management, Integrity and Honesty

F-13 Responsibility—exerts a high level of effort and perseveres towards goal attainment.

F-14 Self-Esteem—believes in own self-worth and maintains a positive view of self.

F-15 Sociability—demonstrates understanding, friendliness, adaptability, empathy and politeness in group settings.

F-16 Self-Management—assesses self accurately, sets personal goals, monitors progress and exhibits self-control.

F-17 Integrity/Honesty—chooses ethical courses of action.

SCANS COMPETENCIES

C-1 **TIME** - Selects goal - relevant activities, ranks them, allocates time, prepares and follows schedules.

C-2 **MONEY** - Uses or prepares budgets, makes forecasts, keeps records and makes adjustments to meet objectives.

C-3 **MATERIALS AND FACILITIES** - Acquires, stores, allocates, and uses materials or space efficiently.

C-4 **HUMAN RESOURCES** - Assesses skills and distributes work, accordingly, evaluates performances and provides feedback.

INFORMATION - Acquires and Uses Information

C-5 Acquires and evaluates information.

C-6 Organizes and maintains information.

C-7 Interprets and communicates information.

C-8 Uses computers to process information.

INTERPERSONAL–Works with Others

C-9 Participates as a member of a team and contributes to group effort.

C-10 Teaches others new skills.

C-11 Serves Clients/Customers–works to satisfy customer’s expectations.

C-12 Exercises Leadership–communicates ideas to justify position, persuades and convinces others, responsibly challenges existing procedures and policies.

C-13 Negotiates–works toward agreements involving exchanges of resources; resolves divergent interests.

C-14 Works with Diversity–works well with men and women from diverse backgrounds.

SYSTEMS–Understands Complex Interrelationships

C-15 Understands Systems–knows how social, organizational, and technological systems work and operates effectively with them.

C-16 Monitors and Corrects Performance–distinguishes trends, predicts impacts on system operations, diagnoses systems performance and corrects malfunctions.

C-17 Improves or Designs Systems–suggests modifications to existing systems and develops new or alternative systems to improve performance.

TECHNOLOGY–Works with a Variety of Technologies

C-18 Selects Technology–chooses procedures, tools, or equipment, including computers and related technologies.

C-19 Applies Technology to Task–understands overall intent and proper procedures for setup and operation of equipment.

C-20 Maintains and Troubleshoots Equipment–prevents, identifies, or solves problems with equipment, including computers and other technologies.
