CHATTANOOGA STATE COMMUNITY COLLEGE
CHATTANOOGA, TENNESSEE
ENGINEERING TECHNOLOGY DIVISION

COURSE SYLLABUS

RP 284 APPLICATIONS IN RADIATION PROTECTION

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Credit Hours: 4
Semester: Spring 2011
Room: O-177/176

Catalog Course Description
Capstone course designed to integrate the student's knowledge of the entire radiation protection field. Practical problems in radiation physics, radioactive decay, interaction, counting statistics, radiation units, regulations, radiation biology, contamination detection, dosimetry, personnel and facilities monitoring, waste disposal and storage, air and water sampling, shielding, radiation safety, and laboratory and facility design. Information for the mathematical solutions to the problems are acquired in the laboratory. (Class 3 hours, Lab 3 hours)

Prerequisites:
RP 101, RP 104, RP 154, RP 204, RP 246, and RP 264 or consent of the instructor

Corequisites:
None

Textbook/Materials

1. Workbook and Laboratory Manual for Radiologic Science for Technologists: Physics, Biology, and Protection, Stewart C. Bushong; Mosby, 2008. ISBN-10: 0323048382

2. ACAD 93-008 Standards 1.3 Basic Components Knowledge, 3.3.11 Conduct and Monitoring of Radiological Work, 3.3.12 Radiological Incident Evaluation and Control, 3.3.13 Decontamination, 3.3.14 Radioactive Material Control, 3.3.15 Environmental Monitoring

Institutional Student Learning Outcomes

ISLO1	Communication
ISLO2	Competence in Specialty Area
ISLO3	Critical Thinking & Analytical Skills
ISLO6	Work Ethic

Program Educational Outcomes

PEO1	Knowledge of mathematics, basic sciences, and technology to solve problems. [ISLO2] [ISLO3]
PEO2	Conduct experiments; collect and analyze data.
PEO11	The ability to use the techniques, skills, and modern radiological tools necessary to function as an radiation protection technician [ISLO 1] [ISLO 2] [ISLO3] [ISLO6]

I. Student Outcomes
Students will demonstrate the ability to:

SO1 Describe basic construction, application, and operation of basic plant components. [PEO1] [PEO2] [PEO11]

SO2 Perform and/or monitor radiological work operations. [PEO1] [PEO2] [PEO11]
SO3 Explain the recognition of and appropriate responses to radiological events. [PEO1] [PEO2] [PEO11]
SO4 Explain and apply the concepts related to decontamination. [PEO1] [PEO2] [PEO11]
SO5 Explain and apply concepts related to radioactive material control. [PEO1] [PEO2] [PEO11]
SO6 Explain the purpose, process, and specifics of environmental monitoring. [PEO1] [PEO2] [PEO11]

	Alignment of Assessments with SOs (actual assessments are defined below)					
SOs	SO1	SO2	SO3	SO4	SO5	SO6
Assessments:	a) Lab b) Hr. Exam c) Final Exam	a) Lab b) Hr Exam c) Final Exam	a) Lab b) Hr Exam c) Final Exam	a) Lab b) Hr Exam c) Final Exam	a) Lab b) Hr Exam c) Final Exam	a) Lab b) Hr Exam c) Final Exam

II. Course Objectives

O1 Describe the theory, construction, and application of the following mechanical components: [SO 1-6]

- Air compressors (such as rotary, reciprocating, and centrifugal)
- Heat exchangers (such as cross-flow, counter-flow and parallel flow); steam condensers and steam generators (U-tube and once-through)) - Include discussion on heat transfer across the heat exchanger and indications of heat exchanger fouling
- Pumps, ejectors, and educators, such as for pumps (centrifugal, positive displacement)-Include centrifugal pump laws, series, and parallel operation; net positive suction head; requirements of minimum flow and effects of dead-heading pump; can causes and indications of cavitation and how to prevent it.
- Strainers, filters, and traps, including demineralizers, screens, and centrifuges for process filtration systems
- Steam traps (such as lever-operated, piston-operated and float-operated)
- Steam turbines (such as impulse and reaction turbines, turbine arrangements and steam flow, high-pressure and low-pressure turbines)
- Valves (such as gate, globe, butterfly, ball, check, needle, diaphragm-operated, plug, pressure relief and safety) and dampers (pneumatic, hydraulic) and limitation of different valve types (for example, gate valve not good for throttling)

O2 Describe the theory, construction and application of diesel engines including the following: accessories/support systems, failure mechanisms and systems, main structural components, main moving components, principles of operations: [SO 1-6]

O3 Describe the theory, construction and application of air conditioning, heating and ventilation systems, including refrigeration machines and the basic refrigeration cycle: [SO 1-6]

O4 Describe the theory, construction, and application of structural and auxiliary equipment, including the following: [SO 1-6]

- boilers (such as electric, gas-fired, fuel-oil-fired)
- elevators (such as basic operation of and basic rescue methodology)
- fire barriers (such as purpose and construction of an identification of barrier degradation

- hangers and snubbers for support and restraint (such as discussion of water hammer and different types, including water slug, valve slam, column rejoining, and condensate induced)
- hoists and cranes (such as manual and electric)

O5 Describe the theory, construction, and application of rotating equipment including the following: generators, motors, motor-generators: [SO 1-6]

O6 Describe the theory, construction and resistive electrical equipment including the following: heaters, heat tracing (such as reasons for using heat tracing): [SO 1-6]

O7 Describe the theory, construction and application of electrical supply components including the following: batteries and chargers, circuit breakers (such as protection), inverters and uninterruptible power supplies, switchgear, load centers, and motor control centers (such as protective relaying and schematics of a basic system from high voltage to lower voltage), transformers (such as step-up transformers and stepdown transformers, winding configurations: [SO 1-6]

O8 Describe the theory, construction and application of electrical control components including the following: cables (such as routing for train separation and methods of fire detection/protection for cables/cable trays), control circuits (such as proportional, integral and derivative or a combination thereof), meters (such as voltage and current and how a change in meter indication could indicate circuit degradation of a change in process (pump discharge valve opened for increased flow)), relays (such as schematics to show operation of relays that energize to actuate, deenergize to actuate, time delay energize and time delay deenergize: [SO 1-6]

O9 Describe the theory, construction and application of valve actuator types (such as motors, pneumatic, hydraulic) including the following: manual operation (such as methods used for different types of actuators), position indication (such as methods for indication, local and remote indications and observation of process indications to determine valve position), impact of environmental conditions: [SO 1-6]

O10 Describe the theory and application of electronic equipment including the following: analyzers (such as H_2, O_2 and chemical), signal converters

O11 Describe the methods that can be used to invoke radiological protection requirements such as: steps in written procedures, radiation work permit, verbal instructions from the supervisor, and verbal instructions from the Radiological Protection personnel. [SO 1-6]

O12 Explain the responsibilities of the following personnel regarding specifying, complying with, monitoring, and enforcing radiological protection and ALARA requirements: workers, worker supervisor, radiological protection technician, and radiological protection technician supervisor: [SO 1-6]

O13 Explain the purpose of using radiation work permits (RWPs): [SO 1-6]

O14 Explain the difference between "standing" and job-specific radiation work permits and when each is used: [SO 1-6]

O15 Identify the information to be included on radiation work permits, such as the following: scope of work covered by the RWP, radiation, contamination, and airborne radioactivity levels, internal and external dose action levels, location of hot spots, personnel authorized to use the RWP, dosimetry requirements, dosimetry requirements, respiratory protection requirements, protective clothing requirements, period during which the RWP is valid, radiological protection coverage and notification requirements, special precautions, restrictions, or limitations: [SO 1-6]

O16 Explain the purpose of having each worker read and sign the RWP: [SO 1-6]

O17 Demonstrate actions that should be taken if radiological conditions at the job site are significantly different from those shown on the RWP: [SO 1-6]

O18 Explain actions to be taken if the work scope or work location changes from that

listed on the RWP: [SO 1-6]

O19 Explain why technicians have stop-work authority and identify types of situations in which this authority is to be implemented: [SO 1-6]

O20 Identify the pre-job radiological survey requirements for the work operation to be performed. Based on the results of the pre-job surveys and the scope of work, identify or evaluate the need for the following: [SO 1-6]

- a formal ALARA review
- pre-job briefings with workers
- type and location of whole-body dosimeters, multiple whole-body dosimeters, extremity dosimeters
- protective clothing requirements
- respiratory protection requirements
- special precautions or conditions to minimize the spread of contamination, reduce exposure, or minimize airborne contamination
- degree of radiological protection technicians' on-the-job- coverage
- In-process radiological surveys to be performed
- radiological hold points

O21 Discuss generic plant procedures for conducting pre-job briefings for radiological work, including: [SO 1-6]

- when briefings are required
- frequency of briefings for continuing jobs
- personnel required to attend briefings
- items to be discussed in briefings
- importance of resolving all questions in briefings

O22 Explain how the type and location of whole-body dosimetry is determined for body position and dose rate gradient: [SO 1-6]

O23 Identify the criteria used to determine the need for multiple badging or for extremity monitoring: [SO 1-6]

O24 Identify measures to take when protective clothing is used in conditions that could result in heat stress: [SO 1-6]

O25 Identify and explain factors that determine the need for and type of protective clothing to be used during radiological work such as: [SO 1-6]

- level of contamination
- position of the workers
- presence of airborne radioactivity
- presence of liquid
- type of work being performed
- environmental conditions
- "total risk" concept

O26 Identify and explain factors that determine the need for and type of respiratory equipment to be used during radiological work, such as the following: [SO 1-6]

- levels of airborne radioactivity
- type of airborne radioactivity (particulate versus gas)
- levels of contamination in the work area
- whether work area is wet or dry
- protection factor of the respiratory protection equipment
- duration of the job
- type of work being performed (welding, grinding, cutting)
- impact of decreased worker efficiency due to respirator use resulting in increased whole-body dose

- applicability of portable ventilation in lieu of respirator use

O27 Describe special precautions that should be used when practical to control or reduce exposures during certain radiological conditions, such as: [SO 1-6]
- assignment of stay times and time keepers
- continuous radiological protection technician coverage
- use of alarming dosimeters or dose rate meters
- use of temporary shielding
- availability of low-dose rate waiting area
- removal of high-dose rate sources

O28 Describe precautions to be used when practical to control spread of radioactive contamination during radiological work, such as: [SO 1-6]
- use of containment devices
- special protective clothing requirements
- use of disposable coverings during job-site preparation

O29 Demonstrate the interpersonal and human relations skills that are used to perform job coverage effectively in conditions such as the following: main control point, satellite control point, job coverage during worker performance problems, exit point control: [SO 1-6]

O30 Evaluate the use of temporary shielding for specific job applications: [SO 1-6]

O31 Discuss the conditions under which each of the following is to be invoked during radiological work: continuous radiological protection (RP) technician coverage, intermittent RP technician coverage, RP technician present at start of job, no RP technician coverage. advanced radiation worker coverage: [SO 1-6]

O32 Describe the in-process radiological surveys that should be performed under various radiological conditions, including: radiation surveys, contamination surveys, airborne radioactivity surveys: [SO 1-6]

O33 Identify generic locations that should be included in process radiation surveys, such as: component being worked on, nearby piping and components, location where workers are positioned, path to and from the work site, low dose areas, hot spots, potentially transient dose rate areas (for example, resin lines, drain lines, movement of sources): [SO 1-6]

O34 Explain actions that should be taken if surveys show radiological conditions significantly different from expected, such as: high contact dose rates, high general area dose rates, unexpected low dose rates, high beta dose rates, very high contamination levels, very high airborne radioactivity, and unexpected lack of airborne radioactivity: [SO 1-6]

O35 Discuss plant access control procedures for entry into the following for performance of work: controlled area, radiologically restricted area, restricted area, radiation area, high radiation area, very high radiation area, contaminated area: [SO 1-6]

O36 Describe actions required when leaving a work site upon completion of radiological work, such as: packaging, marking, and transferring of contaminated tools, equipment, and trash, removing protective clothing, monitoring for contamination, returning special dosimetry, signing out of RWP, notifying radiological protection personnel of job completion: [SO 1-6]

O37 Discuss proper job coverage and radiological protection measures for high exposure jobs and potential high exposure jobs, such as: steam generator maintenance (PWR), reactor coolant pump seal replacement (PWR), reactor water cleanup pump maintenance (BWR), recirculation pump seal replacement (BWR), reactor internal pump maintenance (ABWR), control rod drive maintenance (BWR and ABWR), diving operations, spent resin transfer operations, spent fuel movements, in-core detector maintenance, work in or around spent fuel pool: [SO 1-6]

O38 Demonstrate the interpersonal and human relations skills that are used to perform job coverage effectively in conditions such as the following: main control point, satellite control point, job coverage during worker performance problems, exit point control: [SO 1-6]

O39 Describe, in general terms, the expected response to radiological incidents, including: precedence given to treating injuries, mitigation and minimization of exposure to plant personnel and the public, mitigation and minimization of damage to equipment, notification of appropriate personnel: [SO 1-6]

O40 Identify the radiological consequence that may result from various incidents, such as a sudden increase in dose rate, the uncontrolled spread of contamination, a leak or spill of contaminated liquid, an injury to an individual performing radiological work, a fire in the radiologically restricted area, the loss of a high-activity radiation source, a degraded core, and uncontrolled or unsecured high radiation areas: [SO 1-6]

O41 Describe how to estimate beta and gamma dose rates from the following: contamination on floor, airborne radioactivity (particulate, iodines, noble gases and tritium), pipes or tanks that contain radioactive liquids: [SO 1-6]

O42 Describe how to estimate skin dose resulting from skin contamination including hot particles: [SO 1-6]

O43 Identify isotopes expected to be present in the event of a radiological incident: [SO 1-6]

O44 Describe how to estimate dose due to ingestion or inhalation of radioactive materials: [SO 1-6]

O45 Estimate activity released during an incident using the following: airborne activity levels in a plume, contamination levels and extent of area contaminated, gaseous/particulate specific activity and volume released, liquid specific activity and volume released, pre-release and post-release radiation surveys (for example, pipe, valves, tanks): [SO 1-6]

O46 Identify work practices, instrument responses, or alarms that indicate the potential for a radiological incident: [SO 1-6]

O47 Identify the immediate actions to be taken to control and minimize the extent of radiological incidents such as the following: alarm on electronic dosimeter, area radiation monitor alarm, contaminated injured personnel, contaminated personnel, continuous air monitor alarm, fire in the radiologically controlled area, off-scale pocket dosimeter, contaminated liquid or resin spill, dry contaminated material spill, unmonitored release of radioactivity to the environment: [SO 1-6]

O48 Evaluate radiological incidents to identify the scope and cause: [SO 1-6]

O49 Identify follow-up actions to correct the causes of the incidents: [SO 1-6]

O50 Identify radiological surveys that should be taken as a result of an incident and the purpose of each: [SO 1-6]

O51 Describe how to locate and track a radioactive plume: [SO 1-6]

O52 Explain the importance of using trending to identify causes of individual incidents and common causes of incidents: [SO 1-6]

O53 Discuss how reports of incidents at other plants can be useful in preventing similar incidents at another plant: [SO 1-6]

O54 Describe recent significant radiological incidents at this plant or at other nuclear power plants: [SO 1-6]

O55 Discuss emergency dose limits for life-saving or control of plant safety: [SO 1-6]

O56 Describe the "total risk" concept as it applies to contamination control: [SO 1-6]

O57 Explain the differences between fixed and removable contamination and the resulting differences in techniques used for decontamination: [SO 1-6]

O58 Describe the procedure to be followed when an individual is contaminated, including: performing a contamination survey (whole-body) by radiological protection

personnel, recording contamination levels, location, date, and time on personnel contamination report, identifying when nasal smears and/or a whole-body count are required, documenting final results of decontamination, interviewing individual to identify source of contamination: [SO 1-6]

O59 Explain the importance of tracking and trending perOnnel contaminations: [SO 1-6]

O60 Select the appropriate personnel decontamination techniques for various levels of contamination and the degree to which contamination is fixed: removing particles with tape, scrubbing gently with soft brush, and shaving contaminated hair, sweating and chemical decontamination, washing with lukewarm water and mild detergent: [SO 1-6]

O61 Explain why hot water, cold water and abrasive cleaners are not used for personnel decontamination: [SO 1-6]

O62 Identify conditions in which skin dose calculations should be performed as a result of skin contamination: [SO 1-6]

O63 Describe why some areas of the plant should not be decontaminated, such as: filter galleries, high radiation areas, hallways between contaminated areas frequently traveled by operations personnel: [SO 1-6]

O64 Identify situations in which personnel decontamination is to be referred to other appropriate personnel: contaminated wounds, contaminated eyes, ears, nose, or throat, contamination that cannot be removed using approved techniques: [SO 1-6]

O65 Describe special procedures for decontamination of radioiodines: [SO 1-6]

O66 Identify techniques available for decontamination of tools and equipment, including advantages, disadvantages, and limitations of each: carbon dioxide pellet blasting, chemical decontamination, electro polishing, grit blasting, high pressure water blasting, ice pellet blasting, low pressure water blasting, low pressure water blasting, mechanical removal (grinding, machining, filing), spray wash, steam cleaning, ultrasonic cleaning, use of strippable coatings, wiping with lint free cloth or oil-impregnated wipes, washing in non-ionic detergent: [SO 1-6]

O67 Describe methods used for decontamination of areas within the plant, such as: mopping, oil-impregnated wipes (masslin), wiping with damp rags, vacuuming, scrubbing with brushes: [SO 1-6]

O68 Explain why area decontamination should begin at areas of lowest contamination levels and progress toward areas of high levels: [SO 1-6]

O69 Identify special precautions associated with disposal of materials used in decontamination, such as: wet mop heads, liquids containing detergents, vacuum cleaner dust, mixed waste: [SO 1-6]

O70 Identify NRC-licensed radioactive materials that require special controls, and discuss the controls required: [SO 1-6]

O71 Describe the approval and posting requirements for radioactive material areas and radioactive material storage areas: [SO 1-6]

O72 Identify special precautions and restrictions for storing radioactive materials outdoors: [SO 1-6]

O73 Describe the controls over radioactive effluent releases, including the following: [SO 1-6]

- normal liquid and gaseous radioactivity release paths
- radiation monitors used to detect and measure releases
- procedural controls and records associated with releases
- off-site dose calculations for releases
- use of derived air concentration and technical specification limits
- notifications and actions required for abnormal releases
- radiological environmental technical specifications

O74 Identify regulations and procedures for shipping and receiving radioactive materials: [SO 1-6]

O75 Define the following terms related to shipping radioactive materials: [SO 1-6]

- (49CFR172+3) type A
- type B
- low specific activity
- radioactive white I, yellow II, and yellow III labels
- highway route controlled quantity
- limited quantity
- exempt quantity
- special form
- normal form

O76 Discuss regulatory limits for radiation levels and contamination levels for packages and vehicles while in transit. (49CFR172+3): [SO 1-6]

O77 Explain the radiological protection requirements associated with processing liquid wastes using techniques such as: operation of evaporators, solidification of evaporate bottoms, transfer of demineralizer resin to shipping casks, dewatering and solidification of resins: [SO 1-6]

O78 Describe radiological protection requirements for operating a radioactive waste compactor: [SO 1-6]

O79 Identify and explain techniques for reducing the volume of radioactive solid waste generated, such as the following: [SO 1-6]

- minimizing the amount of material entering the radiologically restricted area
- decontamination
- segregating non-radioactive waste
- reusing cloth rags, shoe covers, bags, protective clothing
- wrapping clean equipment to prevent its contamination
- compaction
- using a "hot tool room"
- removing packing materials outside the radiologically restricted area

O80 Explain the purpose of the plant environmental monitoring program: [SO 1-6]

O81 Describe the methods used to conduct environmental monitoring, such as: [SO 1-6]

- posting thermo luminescent dosimeters off-site
- air sampling
- vegetation sampling
- aquatic life sampling
- water sampling
- soil sampling
- milk sampling

O82 Identify the major pathways of concern in performing off-site dose calculations: [SO 1-6]

III. Assessment

Grades will be determined in the following manner:

				Assessment Method
A1	Laboratory Participation	=	20%	Test/Performance
A2	Assignments/Quizzes	=	10%	Test/Performance
A3	Hourly Exams	=	50%	Test
A4	Final Exam (written comprehensive)	=	20%	Test
		=	100%	

A1. Lab exercises will be performed throughout the semester to apply the concepts discussed in the class lecture. The instructor will observe the students and sign off on each student's lab work. **Regular classroom/laboratory attendance and participation is mandatory.** Missed lab work must be made up in a timely manner (see note below) in order to receive credit for that portion of the course. **Multiple unexcused absences may result in automatic failure of the class.** [SO1- SO6]

A2. Assignments/Quizzes may be made by the instructor. Assignments must be completed in a professional manner and turned in when scheduled. At the discretion of the instructor, late assignments may not be accepted. Quizzes may be given at random times during the semester. The quizzes are designed to encourage keeping up with course material, class attendance, and participation. The assignments and quizzes will count for 10% of the overall grade. (SO 1, SO 1-3)

A3. Hourly exams will be given during the course of the semester. This cognitive-based exam will require students to demonstrate knowledge of Radiation Protection. [SO1 – SO6]

A4. A final written exam will be given at the end of the semester to assess the student's cognitive understanding of Radiation Protection. [SO1 – SO6]

Note: Make-up tests (A2, A3) will be given only in the case of an excused absence, at the discretion of the instructor.

Note: Certification: Students will be required to make a minimum of an 80 to obtain the Institute of Nuclear Power Operations Uniform Curriculum Certification of completion.

IV. Topics:

Topics discussed in this course shall include, but not be limited to, the following:

Week	Topic
1	Basic Construction, Application, and Operation of Basic Plant Components.
2	Safety Considerations in Radiation Protection
3	Reporting Procedures for the Radiation Protection Technician
4	Radiological Work Operations
5	Responses to Radiological Events
6	Radiation Protection Equations, Radioactive Decay Equations
7	Decontamination Methods
8	Decontamination Methods Continued
9	Effects of Radiation on the Environment
10	Radioactive Material Control
11	Environmental Monitoring
12	Student Projects for the Radiation Protection Technician
13	Project Presentations
14	Final Exam

V. Grading Scale

Letter grades will be assigned in accordance with the Academic Regulations in the Chattanooga State catalog as follows:

90—100	A
80—89.9	B
70—79.9	C
65—69.9	D
0—64.9	F

VI. Course Delivery Format

Standard Format – This format is the traditional format and may use an on-line format **(eLearn)** to provide access to "static" materials which include the syllabus, course material, contact information, and presentations. Faculty must make available, when requested, a copy of the syllabus and any other instructor provided course materials, including instructor contact information. Faculty may require on-line activities and assignments to include on-line tests and submission of all written and on-line communications. The extent of on-line activities/assignments may vary by course but will be specified on the syllabus.

VII. College Policies

This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Additional or more specific guidelines may apply.

ADA Statement

Students who have educational, psychological, and/or physical disabilities may be eligible for accommodations that provide equal access to educational programs and activities at Chattanooga State. These students should notify the instructor immediately, and should contact Disabilities Support Services within the first two weeks of the semester in order to discuss individual needs. The student must provide documentation of the disability so that reasonable accommodations can be requested in a timely manner. All students are expected to fulfill essential course requirements in order to receive a passing grade in a class, with or without reasonable accommodations.

Disruptive Students

The term "classroom disruption" means – student behavior that a reasonable person would view as substantially or repeatedly interfering with the activities of a class. A student who persists in disrupting a class will be directed by the faculty member to leave the classroom for the remainder of the class period. The student will be told the reason(s) for such action and given an opportunity to discuss the matter with the faculty member as soon as practical. The faculty member will promptly consult with the division dean and the college judicial officer. If a disruption is serious, and other reasonable measures have failed, the class may be adjourned, and the campus police summoned. Unauthorized use of any electronic device constitutes a disturbance. Also, if a student is concerned about the conduct of another student, he or she should please see the teacher, department head, or division dean.

Affirmative Action
Students who feel that he or she has not received equal access to educational programming should contact the college affirmative action officer.

Academic Integrity/Academic Honesty
In their academic activities, students are expected to maintain high standards of honesty and integrity. Academic dishonesty is prohibited. Such conduct includes, but is not limited to, an attempt by one or more students to use unauthorized information in the taking of an exam, to submit as one's own work, themes, reports, drawings, laboratory notes, computer programs, or other products prepared by another person, or to knowingly assist another student in obtaining or using unauthorized materials. Plagiarism, cheating, and other forms of academic dishonesty are prohibited. Students guilty of academic misconduct, either directly or indirectly through participation or assistance, are immediately responsible to the instructor of the class. In addition to other possible disciplinary sanctions, which may be imposed through the regular institutional procedures as a result of academic misconduct, the instructor has the authority to assign an "F" or zero for an activity or to assign an "F" for the course.

Children
It is Tennessee Board of Regents policy that children are not permitted in the classrooms or laboratories. If you have children who must stay home for some reason, you must make other arrangements for their care than bringing them with you to class.

Communication
Tigermail is the official communication for students.

The instructor reserves the right to modify this syllabus in writing during the course of the semester.

VIII. Instructor Policies

Cell Phones
Activation of these devices represents a distraction and their use during lectures and labs (including instant messaging, games, and etc.) will be considered extremely disruptive to the learning environment. Please turn off (or set to vibrate) all such devices before entering the classroom. Please excuse yourself from the room if an emergency requires you to make or receive a phone call during class. If your cell phone goes off during a testing period, five points will be deducted from your test.

Use of Computers/Printers
The use of a computer is mandatory for all students. Students will have access to the computers in C24, C33, C54, C84, & C87. These computers are connected to the ET server and can be used to access Microsoft Office and other software. There may be times when one of the computer rooms will not be available; these times will be posted with as much advance notice as possible. **It is the student's responsibility to see that his or her username and password are working properly and that his or her password is protected.** It is also the student's responsibility to back-up needed files. The school will not be responsible for any computer files that get "lost" or damaged.
Back-up documentation for this class (such as the class syllabus, handouts, description of class assignments, etc.) will be available to the students through eLearn. Printers are to only be used by Engineering Technology students for assignments related to engineering and engineering technology classes or labs. Paper availability may be subject to print

management activities and will be requested through assigned faculty. Please help conserve paper.

Classrooms & Labs
Food and drinks are prohibited in all Engineering Technology classrooms and labs located in the Branch Center for Technology. Only plain water in a sealable container is permitted. Any form of tobacco products are also prohibited in accordance with College and TBR policy.

To Log-in C24, C33, C54, C84, & C87: Username: ET_last name first initial middle initial *(no spaces)*

Password: student
Domain (log-in): CSTCC

Note: Be sure to change your password after your initial log-in.
The instructor reserves the right to modify this syllabus in writing during the course of the semester.

VIII. Instructor Policies

TBD