**ESSEX COUNTY COLLEGE**

**Nursing and Allied Health Division**

**RTC 107 – Contrast Media (Pharmacology)**

**Course Outline**

**Course Number & Name:** RTC 107 **Contrast Media (Pharmacology)**

**Credit Hours**: 1.0 **Contact Hours**: 2.0 **Lecture**: 2.0 **Lab**: N/A **Other**: N/A

**Prerequisites**:  Grade of “C” or better in RTC 101

**Co-requisites**: RTC 106 and RTC 108 **Concurrent Courses**: None

**Course Outline Revision Date:**  Fall 2011

**Course Description**: Students are further acquainted with procedures in radiography involving the use of contrast media. Detailed information is provided on the equipment and media used, and on the reactions and contradictions to these media. Critiques of radiographic films are conducted in the classroom/laboratory.

**Course Goals:** Upon successful completion of this course, students should be able to do the following:

1. discuss and apply the concepts of pharmacology nomenclature, classifications, actions, and indications and contraindications of drugs used in radiographic procedures;

2. identify specific drugs used in given radiographic procedures in relationship to routes of administration;

3. apply the necessary knowledge and skills to identify clinical signs and symptoms and level of treatment associated with contrast media use; and

4. identify the classifications, terminology, and pharmacologic action of specific pharmaceutical agents.

**Measurable Course Performance Objectives (MPOs)**: Upon successful completion of this course, students should specifically be able to do the following:

1. Discuss and apply the concepts of pharmacology nomenclature, classifications, actions, and indications and contraindications of drugs used in radiographic procedures:

1.1 *describe and identify specific categories of positive/negative, water soluble, oily, and barium sulfide*;

1.2 *explain complications of radiographic drug administration including infiltration, extravasations, phlebitis, air embolism, and drug incompatibility;* and

1.3 *explain ionic and nonionic contrast agents*

**Measurable Course Performance Objectives (MPOs)** (continued):

2. Identify specific drugs used in given radiographic procedures in relationship to routes of administration:

2.1 *identify specific drugs administered orally in given radiographic procedures*;

2.2 *identify specific drugs administered rectally in given radiographic procedures*;

2.3 *identify specific drugs administered via tubes/catheters in given radiographic procedures*; and

2.4 *identify specific drugs administered intravenously in given radiographic procedures*

3. Apply the necessary knowledge and skills to identify clinical signs and symptoms and level of treatment associated with contrast media use:

3.1 *identify the signs and symptoms of mild, moderate, and anaphylactic reactions;*

3.2 *describe appropriate technologist response to mild, moderate, and anaphylactic reactions;* and

3.3 *describe appropriate emergency equipment required for mild, moderate, and anaphylactic reactions*

4. Identify the classifications, terminology, and pharmacologic action of specific pharmaceutical agents:

4.1 *recognize the brand, generic, and chemical names of selected drugs;*

4.2 *identify the action and body system associated with selected drugs;* and

4.3 *recognize proper administration and route for selected drugs*

**Methods of Instruction**: Instruction will consist of lectures, class discussions/participation, PowerPoint slide shows, class activities, radiograph review, and laboratory activities.

**Outcomes Assessment:** Test and exam questions are blueprinted to the course objectives which are based on the minimum standards required by the American Radiology of Radiologic Technologists (ARRT) and the American Society of Radiologic Technologists (ASRT) suggested course curriculum. Note: Tests and exams are primarily structured in multiple-choice formats in conjunction with the ARRT exam. Also, checklist rubrics may be used to evaluate students for the level of mastery of course objectives.

**Course Requirements:** All students are required to:

1. Read the textbook and do the suggested homework problems in a timely manner.

2. Attend and be an active participant in all classes.

3. Take tests/exams in class and adhere to the test/exam schedule.

4. Turn off cell phones while in class.

5. Remain in the classroom during the entire class period.

6. Earn a “C” or better to pass this class. Students who do not earn a “C” or better will be required to withdraw from the Radiography Program as per program policy.

**Methods of Evaluation:** Final course grades will be computed as follows:

 **% of**

**Grading Components final course grade**

* 4 or more Tests (dates specified by the instructor)  50%

Tests will be administered regularly throughout the semester to test student mastery of course objectives.

* **Midterm Exam** (date specified by the instructor)  **20%**

The midterm exam format may consist of multiple choice, short answer, and true/false questions and will include material from the readings, homework, lectures, and labs covered throughout the semester. The midterm exam will test the students’ mastery of course objectives and synthesis of course material covered from the beginning through the first half of the semester.

* **Final Exam**  **30%**

The final exam format may consist of multiple choice, short answer, and true/false questions and will include material from the readings, homework, lectures, and labs covered throughout the semester. The final exam will test the students’ mastery of course objectives and synthesis of course material covered throughout the entire semester.

**Academic Integrity:** Dishonesty disrupts the search for truth that is inherent in the learning process and so devalues the purpose and the mission of the College. Academic dishonesty includes, but is not limited to, the following:

* plagiarism – the failure to acknowledge another writer’s words or ideas or to give proper credit to sources of information;
* cheating – knowingly obtaining or giving unauthorized information on any test/exam or any other academic assignment;
* interference – any interruption of the academic process that prevents others from the proper engagement in learning or teaching; and
* fraud – any act or instance of willful deceit or trickery.

Violations of academic integrity will be dealt with by imposing appropriate sanctions. Sanctions for acts of academic dishonesty could include the resubmission of an assignment, failure of the test/exam, failure in the course, probation, suspension from the College, and even expulsion from the College.

**Student Code of Conduct:** All students are expected to conduct themselves as responsible and considerate adults who respect the rights of others. Disruptive behavior will not be tolerated. All students are also expected to attend and be on time for all class meetings. No cell phones or similar electronic devices are permitted in class. Please refer to the Essex County College student handbook, *Lifeline*, for more specific information about the College’s Code of Conduct and attendance requirements.

**Course Content Outline:** based on the text **Introduction to Radiologic Sciences and Patient Care**, 4th edition, by Adler & Carlton; ISBN-13 #: 978-1-4160-3194-9

**Week Topics covered**

1 Introductions and review of class syllabus

 Text, pp 291 – 305

2 – 3 Method of drug classification

 **Test 1**

4 General pharmacology principles

 Text, pp 291 – 314

5 Five rights of drug safety

 Text, pp 314 – 320

 **Test 2**

6 – 7 Drug categories of relevance to radiography (negative and positive agents)

 Chemical bonds of ionic and non-ionic water soluble iodinated contrast

 **Midterm Exam**

8 Specific procedures/adverse reactions/types of CM

 Text, pp 321 – 334

9 Contrasts and adverse effects

 Text, pp 334 – 336

 **Test 3**

10 – 11 EKG interpretation, intravenous administration of CM

 **Test 4**

12 – 13 Current practice standards

 Text, pp 340 – 342 (ASRT practice standards)

14 Informed consent

Review for the Final Exam

15 **Final Exam** (cumulative)