

**Radiography Program Review**  
**2007-2008**

## The Program Profile

### A. THE MISSION/PURPOSE:

The overall purpose of the Radiography Program is defined by its mission statement:

*Carteret Community College's Radiography Program is dedicated to the delivery of a quality education in radiography through continuous program improvement and actualization of program goals while fostering life-long learning. Through an outcome focused learning environment the program will provide our healthcare community with competent, compassionate, professional entry-level radiographers who are prepared to sit for the ARRT examination, secure employment in their field, and engage in professional growth and development.* (Refer to Exhibit IA-1: Radiography Mission and Goals.)

The Radiography Program's Mission directly reflects the mission of the college. Both the institution and the program strongly believe in offering high quality educational experiences which result in well-trained, knowledgeable and skilled graduates. The mission of the radiography program addresses the needs of the community and future employers by providing each with competent, compassionate, professional entry-level radiographers able to adapt to the changing healthcare environment. Goal #2 of the college's mission statement is to respond to the changing needs of area employers. (Refer to Exhibit IA-2: College Mission and Goals).

The Radiography Program's mission statement and goals, as well as its assessment plan, are aligned with the college's mission and goals, the institutional level learning outcomes of the college, the mission statement of the NCCC System and the performance measures included under the Core Indicators of Student Success located in the NCCC System 2007 Critical Success Factors Annual Report. (Refer to Exhibits: IA-1: Radiography Mission Statement and Goals; IA-2: College Mission and Goals; IA-3: Radiography Program Assessment Plan; IA-4: Institutional Level Learning Outcomes; IA-5: NCCC System Mission Statement; and IA-6: NCCC System Performance Measures).

Program Goal #1 addresses the admission process which results in graduating competent radiographers. This goal supports Goal #1 of the college which states: "the college will promote student success through high quality educational programs and student services by improving student retention, completion, and transfer rates, by preparing all students to succeed in a rapidly changing workplace and by improving and/or expanding course offerings and services to meet the needs of a growing and diverse population in Carteret County."

Program Goal #2 addresses the entry-level skills of graduates. This goal supports goals 1 and 2 of the college. Goal #2 specifically addresses the college's responsibility to respond to the changing needs of the area employers. The college meets this goal by "enhancing

opportunities for Carteret County businesses to thrive in a local and global economy, by expanding education and training for local industries and by strengthening training and resources to enable entrepreneurs to create and/or improve new business.”

Program Goal #3 is concerned with producing graduates who possess professional ethics, attitudes, and behaviors and are committed to continued professional growth and development. This goal supports goal #1 of the college mission statement.

Program Goal #4 is focused on graduates exhibiting respect and empathy to each individual within a diverse population. This supports college goal #4 which states “the college will encourage an appreciation for diversity on the campus and in the community. The college will demonstrate this by promoting and understanding of cultural and individual differences and by developing methods for including multi-cultural education in the curriculum.”

**B. THE FACULTY :**

The program currently employs three full-time faculty members and seven part-time clinical instructors. The seven clinical instructors provide supervision and instruction at seven different clinical sites when a full-time faculty member is not present at the site. The clinical instructors do not teach in any of the on-campus or on-line courses. They are strictly involved only with supervisory and clinical instruction at the clinical sites where they are employed.

The following is a brief description of the full-time faculty, their credentials, accomplishments, and professional development activities. They are listed in alphabetical order.

**Curriculum Area Coordinator:**  
**Name: Elaine M. Fuge**

**Education**

Degree	Year	Institution	Subject Area
HS	1978	Hazleton High School	Academic/College Prep
AA	1980	St. Joseph Medical Center	School Radiologic Tech
BS/BA	1982	Bloomsburg University	Radiologic Tech
MS/MA	1987	University of Pittsburgh	Curriculum / Supervision

**Professional Certifications**

<b>Certification</b>	<b>Year</b>	<b>Institution</b>	<b>Subject Area</b>
current	1980	American Registry of Radiologic Technologists	

### **Professional Development**

A. Related Continuing Education - College or University Courses Taken:

<b>Term</b>	<b>Course Name</b>	<b>Credit Hours</b>	<b>Grade</b>

B. Related Continuing Education - Other Sources:

<b>Date</b>	<b>Course Name</b>	<b>Offered By</b>	<b>Contact Hours</b>
2006	CPR Instruction		6
2006	AHEC Seminar		4
2007	Leadership outcomes workshop	Manning	3
2006	CPR Instructor Update		4
2007	CPR Instruction		4
<b>Date</b>	<b>Course Name</b>	<b>Offered By</b>	<b>Contact Hours</b>
2007	Leadership Academy		50
2007	Outcomes Workshop	Don Staub	6

C. Related Conferences Attended:

<b>Date</b>	<b>City</b>	<b>Sponsoring Organization</b>	<b>Contact Hours</b>
2007		NCSRT State Conference	
2007		Registry Review Seminar	
2006		NCSRT State Conference	
2006		Registry Review Seminar	

### **Scholarship Activity:**

A. Related Publications:

Date	Name of Publication/Title of Article	Authors

**B. Related Conference Presentations/Papers**

Date	Conference Sponsor	Title of Presentation	Authors
2006	Amerinet	Student/Educator Physics Review	
2007	Amerinet	Student/Educator Physics Review	

**Related College/Community Service Activity:**

Name of Committee	Position	Agency	Time Involved

**Related Teaching/Training (unpaid):**

Date	Course Taught	Agency or Institution	Hours (incl. prep)

**Honors/Awards:**

Name of award/honor	Date Received
Professional Membership: American Society of Radiologic Technologists	

## Clinical Coordinator:

**Name: Pamela A. Taylor**

### **Education**

<b>Degree</b>	<b>Year</b>	<b>Institution</b>	<b>Subject Area</b>
HS	1969-1972	East Carteret High School	Diploma
AA AAS	1972-1974	Carteret Community College	Radiography
BS/BA	2004-2007	Florida Hospital , College of Health Sciences	BS in Radiologic Science

### **Professional Certifications**

<b>Certification</b>	<b>Year</b>	<b>Institution</b>	<b>Subject Area</b>
RT-R	1976	American Registry of Radiologic Technologists	

### **Professional Development**

#### A. Related Continuing Education - College or University Courses Taken:

<b>Term</b>	<b>Course Name</b>	<b>Credit Hours</b>	<b>Grade</b>
1995-2004	Teaching Skills for Health Professions Educators		Certification
1993-1995	Teaching & Evaluation in Clinical Settings		Certification
1992-1993	Mammography Review		Certification
1981-1992	Principles of Accounting		Certification
1980-1981	Supervisory Managers Workshop		Certification
2006	Clinical aspects of CT	3	
2006	Physics and Instrumentation of CT	3	
2006	Principles of Mammography	3	
2006	Physics and Instrumentation of MRI	3	
2006	Clinical Aspects of MRI	3	
<b>Term</b>	<b>Course Name</b>	<b>Credit Hours</b>	<b>Grade</b>
2006	CPR	4	
2006	Medical Imaging in a Digital Environment	3	

2006	Quality Management	3	
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B. Related Continuing Education - Other Sources:

Date	Course Name	Offered By	Contact Hours
2007	Leadership Outcomes Workshop	Manning	3
2007	Outcomes Workshop	Staub	6
2007	AHEC Seminar		4

C. Related Conferences Attended:

Date	City	Sponsoring Organization	Contact Hrs
2005		NCSRT Annual Conference	
2006		NCSRT Annual Conf	
2007		NCSRT Annual Conf	

**Scholarship Activity:**

A. Related Publications:

Date	Name of Publication/Title of Article	Authors

B. Related Conference Presentations/Papers

Date	Conference Sponsor	Title of Presentation	Authors

**Related College/Community Service Activity:**

<b>Name of Committee</b>	<b>Position</b>	<b>Agency</b>	<b>Time Involved</b>

Related Teaching/Training (unpaid):

<b>Date</b>	<b>Course Taught</b>	<b>Agency or Institution</b>	<b>Hours (incl prep)</b>

**Honors/Awards:**

<b>Name of Award/honor</b>	<b>Date Received</b>
Professional Membership: American Society of Radiologic Technologist	
Professional Membership: American Registry of Radiologic Technologist	
Professional Membership: North Carolina Society of Radiologic Technologist	
5-,10-,15-, and 20-year Service Awards: CCC	
5-year Pen: Sea Level Hospital	

## **Full-time Faculty:**

**Name: Carla D. Williams**

### **Education**

<b>Degree</b>	<b>Year</b>	<b>Institution</b>	<b>Subject Area</b>
HS	1974	New Brighton High School	HS Diploma
AAS	1990	Robert Morris University	Radiologic Sciences
BS/BA	Currently attending	Florida Hospital College Health Sciences	Bachelor of Science in Radiology

### **Professional Certifications**

<b>Certification</b>	<b>Year</b>	<b>Institution</b>	<b>Subject Area</b>
ARRT	1990-2007	American Registry of Radiologic Technologists	

### **Professional Development**

A. Related Continuing Education - College or University Courses Taken:

<b>Term</b>	<b>Course Name</b>	<b>Credit Hours</b>	<b>Grade</b>
Fall 2006	Medical Imaging in the Digital Environment	3	A
Fall 2006	Legal and Ethical Aspects of Health Care	3	A
Fall 2006	World Religions	3	A
Summer 2006	Quality Management	3	B
Spring 2007	Applied Statistics	3	A
<b>Term</b>	<b>Course Name</b>	<b>Credit Hours</b>	<b>Grade</b>
Spring 2007	Marketing in Health	3	A
Spring 2007	Lessons on Living	3	B
Summer 2007	Issues and Trends in HealthCare	3	B

B. Related Continuing Education - Other Sources:

Date	Course Name	Offered By	Contact Hours
1988-Present	BLS Health Care Provider	American Heart Assoc.	

C. Related Conferences Attended:

Date	City	Sponsoring Organization	Contact Hours
2004-2007	Raleigh, NC	NCSRT Annual Conference	18
May 18,2007	Morehead City, NC	CCC Blackboard Boot camp	6

**Scholarship Activity:**

A. Related Publications:

Date	Name of Publication/Title of Article	Authors

B. Related Conference Presentations/Papers

Date	Conference Sponsor	Title of Presentation	Authors

**Related College/Community Service Activity:**

Name of Committee	Position	Agency	Time Involved

Related Teaching/Training (unpaid):

Date	Course Taught	Agency or Institution	Hours (including prep)

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**Honors/Awards:**

Name of award/honor	Date Received
Member Lambda Sigma/National Honor Society	1988-1990

**C. THE STUDENTS:**

The following data describes the radiography program's student population.

**Carteret Community College Program Analysis  
Radiography (A45700)**

1. The Radiography students represent a predominantly female student body. The racial profile does not consist of a mix reflective of Carteret County's racial profile as a whole. Blacks and Hispanics are underrepresented. Statistics for gender and race are as follows:

<i>Gender</i>	<b>2004-05</b>	<b>2005-06</b>	<b>2006-07</b>
<b>Male</b>	24.2%	17.1%	19.6%
<b>Female</b>	75.8%	82.9%	80.4%
<i>Race</i>	<b>2004-05</b>	<b>2005-06</b>	<b>2006-07</b>
<b>White</b>	91.0%	88.2%	91.6%
<b>Black</b>	3.0%	0.0%	0.0%
<b>Asian</b>	3.0%	3.3%	2.8%
<b>Hispanic</b>	0.0%	0.0%	0.0%
<b>Native Amer</b>	0.0%	0.0%	0.0%
<b>Other</b>	3.0%	8.5%	5.6%

2. The ages and enrollment status of students are in the table below. The majority of the students are between 18 and 34, with few over 35 pursuing the program. The majority of students complete general courses in the program prior to formally entering Radiography, which explains why half of the students enroll as part time students.

<b>Age</b>	<b>2004-05</b>	<b>2005-06</b>	<b>2006-07</b>
<b>&lt;25</b>	15	16	17
<b>25-34</b>	14	16	13
<b>35-44</b>	3	3	4
<b>45-54</b>	1	0	1
<b>55+</b>	0	0	0

<b>Course Load</b>	<b>2004-05</b>	<b>2005-06</b>	<b>2006-07</b>
<b>Full Time</b>	50.0%	53.0%	50.5%
<b>Part Time</b>	50.0%	47.0%	49.5%

3. The core courses in the Radiography Program are only offered during the day. General education courses are offered during night, day, and online, but most students have those completed prior to entry into the Radiography program. This explains why students enroll as day-time students.

<b>Classification</b>	<b>2004-05</b>	<b>2005-06</b>	<b>2006-07</b>
<b>Day</b>	100.0%	100.0%	100.0%
<b>Evening</b>	0.0%	0.0%	0.0%

4. The Radiography program continues to be one of the most sought after programs at Carteret Community College, which helps explain why the program draws students from the tri-county area.

<b>County of Res</b>	<b>2004-05</b>	<b>2005-06</b>	<b>2006-07</b>
<b>Carteret</b>	31.6%	50.0%	48.6%
<b>Craven</b>	32.3%	12.8%	17.7%
<b>Onslow</b>	26.1%	21.4%	22.4%
<b>Other</b>	10.0%	24.8%	11.3%

5. Headcount and FTE remain stable, as the Radiography program has been a popular offering at Carteret Community College for over thirty years.

Program FTE (Source: IE Office/Data Warehouse)

Headcount	Fall	Spring	Summer	
<b>2004-05</b>	33	32		
<b>2005-06</b>	35	35		
<b>2006-07</b>	37	35	35	
<b>FTE</b>				<b>Total</b>
<b>2004-05</b>	24.74	27.25	19.25	51.99
<b>2005-06</b>	26.71	28.04	32	*
<b>2006-07</b>	36	35	35	*

\*FTE numbers not available at this time.

6. Curriculum Student Retention and Graduation. (Source: IE Office/System Records)

Year	enrollment	grads	return	non-completers	retention rate	new program
2004-05	33	16	17	0	100.0%	0
2005-06	35	17	17	0	97.14%	0
2006-07	36	17	18	1	97.22%	0

7. Employment Demand of Graduates of the Program (Source: Department/Graduate Surveys)

Year	Graduates	# Employed	% Employed	Unknown
2004-05	15	15	100%	0
2005-06	17	17	100%	0
2006-07	17	13	76.47%	

8. Passing Rates on Licensure/Certification Exams for First-Time Test Takers. Standard: 80% Aggregate/70% Individual. (Source: IE Office/NCCCS Critical Success Factors Report)

Year	# Tested	% Passed	System
2004-05	10	90%	
2005-06	15	100%	
2006-07	17	100%	

Analysis of Current Status and Future Opportunities (derived from data in the review and from scanning of internal/external environment) (Source: Department)

## **A. Trends**

1. Graduates continue to secure employment immediately to three months after graduation.
2. Job opportunities continue to be available in Carteret and neighboring counties.
3. The number of applicants to the radiography curriculum continues to increase.
4. Additional clinical education sites have been recognized by the JRCERT.
5. The program continues to investigate other potential clinical education sites.

## **D. RESOURCES:**

This area addresses support personnel , instructional facilities, learning resource facilities, and equipment and supplies utilized by the program. The following information is provided regarding these resources as well as the program budgets for the last three years.

### 1. Support personnel

- a) Curriculum Support Services - Curriculum Support Services consist of two full time employees and three part time employees. These employees assist all faculty with any instructional materials that range from typing tests, copying, PowerPoint presentations, accreditations, or anything else that is related to their program.
- b) CAPS: Career & Academic Planning Services (CAPS) provides comprehensive career and academic development resources. If you need help selecting a career path, want to know more about career or academic options, or want information about transferring to a university, please contact one of the CAPS coaches.
- c) Academic Support Services Tutoring Information – Academic Support Services provides free tutoring in most subject areas, a Writing Center for help with papers and reports, and an open computer lab. Assistance for students with special needs and make-up testing are also administered in this area.
- d) Academic Computer Lab – The Open Computer Lab is a general-purpose lab providing computer technology as well as technological support for effective computing to all CCC students, enabling students to complete course curriculum.
- e) Library – Information on services and resources are located online at [www.carteret.edu/library](http://www.carteret.edu/library).
- f) Student Enrollment Resources – Student Enrollment Resources consist of the Admissions Office, the College Receptionist, Counseling Services, Financial Aid, the Registrar’s Office and Student Activities. These services are designed to make the educational process as efficient and productive as possible.

- g.) Dedicated Guidance Counselor to Allied Health – Mark Johnson.
- h.) Advisory Committee/Board

2. Classroom & Laboratory facilities

The Radiography Program has two designated classrooms available Monday through Friday from 8:00 AM to 5:30 PM. An instructional area is routinely available within the radiography lab. It contains round tables and can seat 20 students comfortably. Audio visual equipment is available and two computers are located in the lab area.

3. Refer to Library Document (Exhibit ID-7: Library Resources)

4. Equipment & Supplies

The program has two energized labs. One unit is an R/F unit and the other is an integrated system. The laboratory is also equipped with CR equipment and PACS. There is a C-Arm also available for clinical instruction in the lab.

**EQUIPMENT REPLACEMENT COST**

Faxitron (2)	15,000 each
Complete set of phantoms	8,500*
Radiation monitor #1	6,500*
Radiation Monitor #2 with 3 sector probes	5,000*
R & F X-ray system	400,000*
High Frequency Rad system	75,000*
Mayo test stand	3,000*

Rad Processor	26,000*
Rad Analyzer	12,000*
Diamentor	Obsolete
Kvp meter	Included in Rad analyzer
Auto scan	Obsolete
C-Arm system	120,000*
Pb aprons	175 each*
View boxes	562/4 panel unit*
Densitometer	875*
Sensitometer (dual color)	850*
Phantom arm for injecting	2,500*
Stretchers (3)	1,200 each
Wheelchair	800
Skeleton	1,000
Ultrasound units (2)	200,000 each *
MD6 System – Ph	5,000*
Model #040 Ultrasound	2,400
Full fetal phantom	1,600
Ultrasound table	3,700
Konica Drypro 7 and CR	102,000*

The items that have asterisk are the critical items that would need replacement.

5. Program Budget:

The program budget has been reduced over the last three years. Currently there is enough available to cover expenses for the FY 07-08, providing nothing out of the ordinary occurs.

There are real concerns for next year (FY08-09) when the CR service contract comes due. At that time the college will be expected to cover the annual service contract on the new system. The projected cost is \$8,800 per year for the next three years. The contract will begin on July 1, 2008 and will end on June 30, 2011.

(Refer to Exhibits: Section ID-8 Other Cost Budget for FY 04-05

Section ID-9 Other Cost Budget for FY 05-06

Section ID-10 Other Cost Budget for FY 06-07)

**E. GENERAL:**

This area addresses the employers our program serves by providing them qualified radiographers. It also demonstrates the institutions our students transfer to in order to complete certifications in advanced modalities. Lastly, it outlines any major improvements the program can document since our last evaluation.

1. Specific Industries or businesses served by the program

Graduates from the Carteret Community College Radiography Program for the following years, 2005, 2006, and 2007 are currently employed locally at:

Carteret General Hospital

Beachcare

Carteret Surgical Associates

Onslow Memorial Hospital

Craven Regional Medical Center

Onslow Radiology

Medcare, Jacksonville

Onslow Diagnostic

ECIM

Cherry Point Naval Hospital

Cape Fear, Wilmington

New Hanover, Wilmington

Rex Hospital, Raleigh

Graduates are also employed in:

Asheville, NC

Florida

Arizona

Michigan

Virginia  
Texas  
Kansas  
Iowa  
Czech Republic

2. Institutions to which your current students transfer:

Graduates of Carteret Community College Radiography Program for the following years 2005, 2006, 2007 transferred to the following institutions:

Mount Olive	BS Healthcare Management
UNC – Wilmington	BS Healthcare Management
Pitt Community College	Interventional Radiography, Radiation Therapy
Carteret Community College	Sonography Program, FHCHS Bachelor of Science

3. Significant developments since the last evaluation:

a. Faculty Turn-Over:

Larry Miler, CAC, retired in 2002. E.Fuge filled position in July, 2002.

Gurney Mizell, Division Director, retired in April 2006.

Laurie Freshwater, Respiratory CAC, filled the Division Director position in May 2006.

b. JRCERT Site Visit was conducted on November 2 and 3, 2006. The program was awarded an 8 year full accreditation at the October 19, 2007 JRCERT Meeting. The next site visit is tentatively scheduled for the fourth quarter of 2014.

c. Purchases over the last 5 years:

1. Mosby Positioning Slides Series
2. Pb marker system for the skills lab
3. Cassettes with various speed screens for lab experiments
4. Grid Cassettes for lab experiments
5. Supplies for darkroom and offices.
6. Transport cart for lab
7. Books for Radiography and Sonography curricula
8. Pb masks (cassette dividers) for positioning classes
9. Film bin

10. QC monitors and test tools for lab experiments and for exposure calculations on energized equipment.
11. NCRP reports for instructor reference material
12. Shredder for curriculum support services
13. Software upgrade for G. Mizell's computer
14. Pb Thyroid shield for lab
15. Primary assessment series (these are updated every other year.)
16. Computers for both the CAC and Clinical Director.
17. Computer stands for instructor computers.

d. CR System: This advanced imaging system was purchased with an Allied Health Grant. The grant came from the Community College System. The cost of the system was \$95,200. The money to purchase this system came from this grant. The intent of the grant was to improve the technology that the programs in the community colleges are using for instruction. The healthcare goal was to have the curricula be able to provide the same type of medical technology to the students which they will encounter in the workplace. The technology included software, skills lab equipment, and patient management equipment. By providing this cutting edge technology the community college programs, and those at CCC, would be able to offer updated learning opportunities and educational experiences to the students enrolled in the healthcare programs.

e. The CAC conducted three continuing education seminars for area registered technologists. These seminars provided opportunities for technologists to earn continuing education credits in their professional field. By earning these credits the technologists maintained their certification in radiography. Every registered radiographer must earn 24 credits in a 2-year period in order to maintain their certification. If a technologist falls short earning these credits it could jeopardize their certification status, as well as, their job.

The CAC arranged for guest lecturers and worked with the ASRT to have the seminars approved for continuing education credits. The money that was raised was put into the radiography club budget and was used to defer students' costs for attendance at the state conference. The first seminar was held on November 4, 2003; the second on April 6, 2004; and the third one on April 7, 2005. The cost was \$10 for 3 CEC's. Unfortunately, due to low enrollment the seminars were discontinued in 2006.

f. Reactivated the Radiography Club was reactivated by the CAC in 2003. It continues to be active to date

## **I. PROGRAM CONTENT**

### **A. Definition of the Program**

The Radiography curriculum prepares the graduate to be a radiographer, a skilled health care professional who uses radiation to produce images of the human body.

Course work includes clinical rotations to area health care facilities, radiographic exposure, image processing, radiographic procedures, physics, pathology, patient care and management, radiation protection, quality assurance, anatomy and physiology, and radiobiology.

Graduates of accredited programs are eligible to apply to take the American Registry of Radiologic Technologist's national examination for certification and registration as medical radiographers. Graduates may be employed in hospitals, clinics, physician's offices, medical laboratories, government agencies, and industry.

The Radiography Program has a competitive admissions process. Twenty students are accepted each year. These students should enjoy helping others, being part of the health care team, and should possess good critical thinking and problem solving skills. Having a strong math and science background is highly recommended.

A prospective student must complete the specific program requirements and satisfactorily complete the Technical Performance Standards. In addition to the above, a radiography pre-admission data sheet is completed on all applicants with students accumulating the most points being accepted into the program. (Refer to Exhibit IIA-1 Pre-Admission Data Sheet.)

### **B. Curriculum and Coursework**

**The following degree is awarded:      Associate in Applied Science**

**The core curriculum consists of the following courses:**

1.      RAD 110 RAD INTRODUCTION & PATIENT CARE
2.      RAD 111 RAD PROCEDURES I
3.      RAD 151 RAD CLINICAL EDUCATION I
4.      RAD 112 RAD PROCEDURES II
5.      RAD 121 RADIOGRAPHIC IMAGING I
6.      RAD 161 RAD CLINICAL EDUCATION II
7.      RAD 122 RADIOGRAPHIC IMAGING II
8.      RAD 131 RADIOGRAPHIC PHYSICS I
9.      RAD 171 RAD CLINICAL EDUCATION III
10.     RAD 211 RAD PROCEDURES III
11.     RAD 231 RADIOGRAPHIC PHYSICS II

12. RAD 241 RADIOBIOLOGY/PROTECT
13. RAD 251 RAD CLINICAL EDUCATION IV
14. RAD 245 RAD QUALITY MGMT
15. RAD 261 RAD CLINICAL EDUCATION V
16. RAD183 RAD CLINICAL ELECTIVE
17. RAD 271 RADIOGRAPHY CAPSTONE
18. RAD 283 RAD CLINICAL ELECTIVE

**The general education courses are as follows:**

1. BIO 163 Basic Anatomy & Physiology
2. ENG 111 Expository Writing
3. ENG 114 Prof Research and Reporting
4. PSY 118 Interpersonal Psychology **(OR)** *PSY 150 General Psychology*
5. ENG 131 Introduction to Literature**(OR)** *ENG 233 Major American Writers*

DIDACTIC CREDIT HOURS: 45 (64%)

CLINICAL CREDIT HOURS: 25 (36%)

TOTAL CLINICAL HOURS: 1488

**C. External Accreditation**

The radiography program is fully accredited by the Joint Review Committee on Education in Radiologic Technology. The USDE recognizes the JRCERT as the accreditor for radiography programs in both hospitals and colleges. The JRCERT is the only agency recognized by the USDE to accredit educational programs in radiography and radiation therapy. The USDE requires that there is a curriculum in place that is used to evaluate the programs. The JRCERT requires programs accredited by them to follow the most current professional curriculum. This curriculum is approved by the American Society of Radiologic Technologists.

In order for a radiography program to be accredited by the JRCERT it must demonstrate substantial compliance with the Standards for an Accredited Educational Program in Radiologic Sciences (radiography and radiation therapy). JRCERT accreditation offers the following values:

1. It provides students assurance that the educational program will provide them with the requisite knowledge, skills, and values to be a competent radiographer.
2. It assures patients that students who perform procedures have appropriate supervision during the educational process. It also assures them that graduates have met the minimum level of competency as defined by the profession.
3. It assures educators that their educational programs are keeping pace with the profession and with the standards developed through national consensus.
4. It assures the profession at large, that the educational programs in the field are providing consistent minimum education in the profession as the defined by the profession.

**The Process:**

Initial accreditation begins with a new program completing an application for accreditation and a self-study report. Once the report is reviewed by the JRCERT accreditation specialist, the program director is informed if the report is complete or if additional information is required. Once the self-study report is complete the site visit is scheduled. A site visit team is selected by the JRCERT. The program has the right to accept or reject the team selected. Once the site visit team is approved by the program a date is set within 6 months for the on-site visit. The site visit team members receive the self-study and all exhibits one month prior to the visit. This gives them time to review the program and generate questions they would like to ask during the site visit.

The program director is responsible for making all travel, lodging and meal arrangements for the team while they are in town. The site visit usually takes 1 \_ to 2 full days depending on the program's ability to provide all information the site visitors request during the visit. An exit interview is conducted during the last two hours of the site visit.

First the team meets with the program director and reviews their findings. The team then meets with the President, Vice-President, Program Director and program faculty and informs all present of their findings. Areas of compliance, partial compliance and non-compliance with the standards are documented.

Once the site visit is over, the team has one month to report its findings to the JRCERT . The team chairman must submit a written report documenting all areas of compliance, partial compliance and non-compliance with the standards. The JRCERT has 3 months to provide the program with the Report of Findings.

The program receives a Report of Findings letter and has one - two months to respond to the letter. The program can submit documentation demonstrating they have corrected areas of partial compliance and non-compliance. All statements must demonstrate proof that changes have been made and implemented.

The JRCERT accreditation specialist assigned to the program reviews the response to the Report of Findings and makes the program director aware if any additional information or documentation is required. The specialist assists the program director in getting the program approved for full accreditation.

The Program, with all supporting documentation, is brought before the JRCERT Board during one of their sessions. The Board determines the accreditation status the program will be awarded.

The JRCERT sends a letter to the program and the President of the College stating the accreditation status of the program.

For programs that are already accredited the process is the same except that the process begins with the continuing accreditation materials being sent to the JRCERT one year prior to the proposed site visit date. This date was determined at the last accreditation process.

#### **Current Status:**

Carteret Community College's Radiography Program was awarded a full 8 year accreditation status during the last accreditation. The most recent site visit took place on November 2 and 3, 2006. The program was awarded 8 year accreditation status on October 19, 2007. This is the highest status a program can achieve.

#### **D. Innovations:**

- The Data Arc system has been implemented for clinical notebook in RAD Clinical Ed classes; RAD 151, RAD 161, RAD 171, RAD 251, RAD 261 and RAD 283. This is the same computerized system used by the Carteret Community College Respiratory Program.

The class of 2008 will be using this system for clocking in and out at clinical sites only. The class of 2009 will be using the system in its entirety instead of the cumbersome paper clinical notebooks. Clinical exams and evaluations will be kept electronically on the Data ARC system. The students will be charged a \$50.00 fee for this system. The system will maintain records of clinical exams and evaluations for the students to access up to five years after graduation. Students, Clinical Instructors and Radiography Program faculty may access the system from clinical sites, office or home.

- Computed radiography system was installed in the Radiography lab. This system will give the students hands on training in the same system as some of their clinical sites are using. RAD 121 and RAD 122 are in the process of implementing experiments pertaining specifically to the CR system.
- RAD 110 was taught as web-enhanced in the Fall 2007 semester and RAD 245 is currently being taught as web-enhanced in the Spring 2008 semester. Future plans are to implement web-enhanced classes in several other classes in the Radiography program.

#### New Programs:

- The Medical Sonography Program was implemented in 2004. Applicants must be a Registered Radiologic Technologist or Registry eligible by having successfully completed an accredited radiography program within the last two years. The applicant must become registered in radiography in order to sit for the Sonography Registry exam. The Medical Sonography curriculum prepares the graduate to be a sonographer, a skilled medical professional who uses high frequency sound waves to image the body. Please refer to the CCC college catalog pages 361 to 363 for a detailed description of these courses. Course work includes clinical rotations to area health care facilities. Graduates are eligible to take the ARRT exam for medical sonographers.

Elaine Fuge – Curriculum Area Coordinator

Joe Downey – Sonography Instructor

Joseph Overby – Sonography Instructor

#### Diversity:

- Each year a diverse group of candidates apply to the Radiography Program. Student Enrollment Resources works with all interested students in designing an academic plan to assist them in becoming qualified for the Radiography Program.
- The Radiography Program supports Goal #4 of the college's Mission and Goals Statement which states "Encourage an appreciation for diversity on the campus and in the community."
  - 4.1 Promote understanding of cultural and individual differences.
  - 4.2 Develop methods for including multi-cultural education in the curriculum.

Candidates that meet the admission requirements and score high in the selection process are offered a position in the program.

- RAD 110 Introduction to Radiologic Technology & Patient Care has implemented a new Unit on Human Diversity as of the Fall 2007 semester. This will improve our graduates' ability to serve the diverse needs of our community through a better understanding of

cultural differences. Please refer to mission statement and Goal #4 on page 4 of the college catalog. (As stated above).

**E: Testing and Remedial Coursework:**

- II, or  
grade.  
in  
algebra, and  
reflect academic  
54%ile (raw >16), English a  
>17), elementary algebra a  
41, and a writing sample score  
2006).
- 1. Admission Course Work Requirements:** Complete high school Algebra I and fulfill all college level algebra developmental requirements (complete MAT 080). Complete one unit of high school biology, or college level biology (BIO 110 or greater). Complete one unit of high school chemistry, or physics, or fulfill all college level chemistry (CHM) or physics (PHY) developmental requirements or higher. The required algebra, biology (BIO), chemistry (CHM), and physics (PHY) courses in high school or in college must be completed with at least a “C” Beginning August 2009, Math 161, College Algebra will be required as a prerequisite to the program.
  - 2. Admission Academic Readiness Requirements:** Must fulfill all developmental requirements either by testing or completion of developmental course work in English (ENG 090), reading (RED 090), numerical skills, elementary intermediate algebra (MAT 080). Placement test scores must reflect academic readiness. Minimal percentile ranks are for reading a 54%ile (raw >16), English a >17), elementary algebra a scale score of 41, intermediate algebra a scale score of 41, and a writing sample score of 3 (the writing sample was discontinued after December 2006).
  - 3.** There is a three (3) year time limit on placement test scores. Radiography applicants must take the elementary and intermediate algebra portions of the placement test. No waiver is allowed.

**F. Evaluate Instructional Modalities**

Traditional Instruction modalities are used in the classroom for delivery of lectures and meeting competency requirements. These modalities include classroom instruction, which utilizes teaching tools such as PowerPoint presentations, slide presentations and standard lecturing from notes. Other modalities include lab practicums and review exercises that include hands on learning and other tools such as games which reinforce student learning. Students also give presentations in class on assigned topics.

The effectiveness of these modalities is evaluated through course evaluations, course grades and ARRT content grades.

A new instructional modality of online instruction is being implemented for the program. This includes content for 1) the Medical Terms portion of RAD 110, 2) RAD 245- Quality Management, 3) Positioning (Procedures RAD 111): due online Fall 08, and 4) RAD 241 – Radiation Protection/Biology due online Fall 08.

The effectiveness of these modalities is evaluated in an end-of-semester survey evaluation form that is completed by online students.

The program makes effective use of clinical education, a hands-on modality of instruction, which involves students working with industry partners.

The effectiveness of this modality is evaluated as very effective because of the nature of the skills that are taught and which result in Qualified Technologists as evaluated through the post-graduation employer surveys.

The above instructional modalities involve and engage students with different learning styles by utilizing lecture, hands-on, visuals, presentations/research and textbook and reading comprehension.

Additionally the instructional modalities are selected by way of comparing the purposes and goals of the program with the expected outcomes such as attaining the rating of Qualified Competent Radiographer. This necessarily involves modalities of clinical experience, didactic preparation and distance learning.

## **G Funding for Curriculum Changes**

Any curriculum changes must go through an extensive review process. First the program initiating the change must make all programs aware of the proposal through the NCCCS. All programs have the right to respond either negatively or positively, to the proposed change. The change then goes before the NCCCS Board who will ultimately approve or deny the change.

All major curricular changes that would require a program to purchase additional equipment, faculty, etc. would not be covered by the program's operating budget. If the change is a mandatory change then the state community college system would be responsible for absorbing the cost. The Vice-President of Finance would submit the paperwork for such changes.

If a smaller change or purchase is necessary to improve the program or instructional strategies, then a request can be made to the Assembly for Strategy and Planning (ASAP) Committee for funds to cover the cost.

## **II. OUTCOMES:**

### **A. Process of Identifying Outcomes:**

The Carteret Community College Radiography Program chose the Program Outcomes (PO's) and Program Level Learning Outcomes (PLLO's) according to and in agreement with the Carteret Community College and Radiography Program philosophy, mission statement and goals. These outcomes were chosen by the Program Review Committee (PRC) and Program Faculty at the PRC meeting. These are compatible with the ARRT guidelines as well as the Carteret Community College institutional level learning outcomes (ILLO's).

### **B. Administrative Outcomes:**

The Administrative Outcomes of the Radiography Program are to hold a Mammography Seminar, Fall 2008. We also plan to hire a part-time Clinical Instructor to supervise the students at clinical sites.

These administrative outcomes were chosen during a Radiography Department meeting by their importance to the program.

- C. Program Outcomes and Results of Measurements  
(Refer to Exhibit IIIC-11: Radiography Assessment Plan)
  
- D. Program Level Learning Outcomes (Student Learning Outcomes)  
(Refer to Exhibit IIIC-11: Radiography Assessment Plan)
  
- E. Follow up of Students Served:  
(Refer to Exhibit IIIC-11: Radiography Assessment Plan)

## **IV Need For Change**

### Radiography SWOT

April 1, 2008

Location: Carteret General Hospital

Participants:

Ken McBride	Director of Radiography, CGH
Sally Figiwoe	Imaging Center Director
Vidhi Malhotra	Clinical Instructor at Imaging Center
Michelle Wilson	Senior Student/Clinical
Jason Willis	Current Student/Clinical Site
Jason Marcello	Former Student; graduated 2 years ago
Ruth Kildow	Clinical Instructor on Site

On April 1, 2008, Don Staub met with a group of Carteret General Hospital employees who all work in the Radiography department. Some of the participants were current students in the CCC Radiography program (doing clinical work), some were program graduates, and some were supervisors within the CGH Radiography department. The group discussed what they perceive to be Strengths, Weaknesses, Opportunities, and Threats for the Radiography program at CCC.

### **Strengths**

Certainly, the most significant portion of the discussion centered on the strengths of the radiography program. Weaknesses, Opportunities, and Threats were identified and discussed, however participants in the discussion (both students and supervisors) exuded a great deal of satisfaction with the program, and its ability to anticipate and respond to weaknesses, opportunities, and threats. Three principal themes emerged

from the discussion on the program's strengths: 1) Overall program quality, 2) Quality of the students completing the program, and 3) the Instruction and Instructional Modalities available to students.

#### 1. Overall quality

Participants, who come from a range of backgrounds and experience, emphasized that the CCC Radiography program is an "Exceptional program." And, "good or better than any program throughout the state." The CGH director of the Radiography department stressed that the program continues to strengthen itself, commenting that, "Since 1981, every year the program has improved itself." Participants noted that this is in part due to the director, whom they said is "very good." They also attributed success of the program to the degree of difficulty in getting in. It is for this reason that students are well prepared for the work they will face after graduation (and "prepared for the student bowl," as one participant commented). Overall, participants agreed that the program has "no deficiencies in preparing students."

#### 2. Quality of students

Another significant strength is the competence and skill of the students who complete the program. SWOT participants consistently remarked that the Radiography program had "prepared them well." Supervisors of the students spoke highly of the students' confidence. They suggested that this was the result of receiving exposure to technology and techniques through multiple clinical sites. Students were also complimented for their ability to "handle themselves very well professionally."

#### 3. Instruction/Instructional modalities

From the students' perspective (both current and former), the instruction and the instructional modalities set the program apart. Some of the students remarked that it was the "core teaching...the experience in field and class," that gave them a good foundation before heading into the work world. Others remarked that it was the extra semester/capstone experience, which prepared them for the registry, that made the program exceptional. One student commented that it was the instruction that made him come out of the program "acting like a technologist." Another student added that the instruction "helped me smooth out rough edges" in knowledge and skills. And another student noted that the instruction helped her "feel 100% comfortable and confident" for the workplace.

Students also praised the different modalities in teaching, citing that they gave them "a broader outlook." The wide range of technologies that they were exposed to, either at CCC or at the variety of clinical sites (i.e. "we weren't locked on to one site") was viewed as a definite advantage. They also commented that the online courses that are offered through the program, "prepares you well for future continuing education, most of which is online."

Finally, the students pointed out their appreciation for Carla, "a good technical teacher," who brings a lot of experience from CGH to the classroom.

### **Weaknesses**

The two primary issues that were discussed by the group were the unpredictability of equipment in the Radiography program, and the intensity of the last two semesters of the program – summer of junior year and fall of senior year. For the latter issue, students are apparently aware that these two, rigorous semesters are coming back-to-back, but they still feel that it weighed heavily on them. The comments made regarding the program's equipment centered on issues such as, "the processors don't always work," and "important information may be missing" for data output.

### **Opportunities**

The discussion focused on a number of opportunities that participants believed would strengthen the program – in terms of quality and attractiveness for potential students. First, the participants noted that it would be advantageous for the program to offer training in CT and MRI, "instead of students having to go to Pitt." Participants also indicated that such an expansion of training would provide an opportunity to "look beyond basic training" in these technologies. The second area that participants felt was a significant

opportunity was in the area of training to perform mammograms. Finally, participants suggested that the application process could be strengthened through site visits to provide prospective students a view of what the work environment would be like.

### **Threats**

There were two principal threats that the group perceives: Availability of positions and the cost of living in Carteret County. For the former, participants believe that there are fewer positions available in the work place for program graduates. As a corollary, they wondered whether the Radiography program may be “flooding the market” with program completers, thus increasing the intensity of competition for position openings. Finally, the group mentioned that the relationship between salaries for program graduates and the local cost of living was out of balance, and that it was increasingly difficult for employees in this field to maintain a reasonable lifestyle in this area. That is, given the cost of housing and food in this area, it’s difficult for a single person or a young family to become established.

## **V: FUTURE ISSUES – RESOURCES NEEDED FOR FUTURE EFFORTS**

### **A. Anticipated Future Curricular Changes and Needs**

**(based on market trends).**

Based on market trends, Allied Health jobs in North Carolina are projected to increase 36% between 2000 – 2010 according to past and present data from the North Carolina Area Health Education Centers Program and the North Carolina Employment Security Commission (AHEC).

The radiography program will accept 20 students each year from the qualified applicants.

A Mammography Certificate program will be offered starting Fall 2008 and twice yearly thereafter in Fall and Spring 2008/2009 Part-time faculty will be needed with ARRT Registry RT R (M). This workshop will fill the needs of radiologic technologists in Eastern North Carolina vacated by the closure of the program at Johnston Community College. Possible future Mammography Certificate program with on-line instruction and clinical experience arranged at local hospitals/clinics.

### **B. Market Trends Within Program Area**

The Cecil G. Shep Center for Health Services Research predicts a rising demand for health care workers in North Carolina due to the aging population and decline in manufacturing employment. Vacancy rates are generally higher in rural, Eastern North Carolina.

Growth of Positron – Emission Tomography (PET) CT scanning is anticipated.

Growth of cross-training or dual certified modality technologists is predicted by the technical panel on radiologic sciences workforce.

Growth of the Radiologist Assistant and Radiologist Physician Assistant positions are anticipated within Eastern North Carolina.

**C. Equipment, Space, and Faculty Needs for Future Growth or Continuation**

Part-Time instructors for mammography, CT/MRI Certificate programs will be needed.

We are pursuing external funding for a digital radiography room to update the radiography lab with equipment and technology currently used in Eastern North Carolina.

**D. Future Plans**

The Carteret Community College Radiography Program will continue to develop the on-line components of radiography courses, distance learning and web-based education will become more utilized in all aspects of the curriculum as well as in mammography workshops and CT/MRI certificate programs. These new programs will need to be actively advertised through the AHEC, the ASRT, ARRT and other local media.

Attached are recommendations by the Technical Panel on Radiologist Sciences Workforce in North Carolina. (Refer to Exhibit V-12)

**CARTERET COMMUNITY COLLEGE**  
**ANNUAL PROGRAM REVIEW**  
**FOR THE**  
**RADIOGRAPHY ASSOCIATE DEGREE PROGRAM**  
**MAY 2008**

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