Medical Radiography Program Review Self Study
Dixie State College of Utah

I. Program Description

Mission Statement and Goals
The Medical Radiography Program is committed to providing a comprehensive educational experience that prepares the student to enter the field of radiography with the knowledge and skills to be a successful part of the healthcare team.

Goals:

1. Students will possess the knowledge and skills necessary for professional practice as a radiographer.

2. The program will provide the healthcare community with trained and registered radiographers skilled in diagnostic imaging procedures.

3. Students will become independent learners demonstrating critical thinking and problem solving skills.

4. Students will demonstrate professional behavior and ethical conduct.

Philosophy of the Medical Radiography Program
It is the program's philosophy that to develop professional, competent and compassionate medical radiographers requires a quality education founded on a well-rounded curriculum which includes technical skills, critical thinking, and ethical and responsible behavior.

Description of Program
This is a two-year, full-time program which includes didactic and clinical experience at cooperating hospitals, clinics and doctors' offices. It consists of six semesters of academic studies with coordinated practice in area imaging departments. The program is a part of the Division of Health Sciences and is housed within the School of Business, Health and Science. Many of the prerequisite courses are through the Sciences program.

The program is competency based and follows the American Society of Radiologic Technologists Curriculum Guide. Graduates are eligible to sit for the American Registry of Radiologic Technologists certification. In concert with the college's mission, the program is designed to assist students in achieving their goal of becoming registered radiographers, obtain employment in the field of radiology and/or further their education by instilling the value of life-long learning.

The Medical Radiography Program received 3-year accreditation, the maximum for a new program, from the Joint Review Committee on Education in Radiologic Technology located at 20 N. Wacker Drive, Suite 2850, Chicago, IL 60606-3182. This is the national accrediting agency for radiography programs and assures that programs follow standards to maintain academic excellence. The next review date is scheduled for the First Quarter of 2010.

Degree Granted
Associate of Applied Science in Medical Radiography

Admission Criteria
Prerequisite courses for the Medical Radiography program provide the student with a solid foundation of knowledge that is essential for success in the program. Additionally, accreditation requires a minimum of 15 credit hours of general education course work to include math, written/oral communications, arts/humanities, information systems, social/behavioral sciences and natural sciences. All required prerequisite courses must be completed with at least a grade of **C** (2.0 GPA). A cumulative GPA of at least a 2.7 is required for admissions into the program. The prerequisite courses required are:

ENGL 1010	Intro to Writing	3 credits
ENGL 2010	Intermediate Writing	3 credits
LIB 1010	Information Literacy	1 credit
COMM 2110	Interpersonal Communication	3 credits
BIOL 2320/2325	Anatomy & Lab	5 credits
BIOL 2420/2425	Physiology & Lab	4 credits
PSY 1010	Psychology	3 credits
MATH 1050	College Algebra	4 credits
	Total	26 credits

All applicants must submit PSB test scores, three letters of recommendation, and official transcripts. Applications are reviewed once a year for spring semester beginning in January. Application deadline is August 1st of each year. The selection process is competitive and qualified applicants are interviewed by a committee consisting of representatives from the imaging community.

Graduation Criteria
Graduation requirements include successful completion of core courses with a C- or better.

RADT 1015	Intro to Radiography and Patient Care	3 credits
RADT 1020	Radiographic Procedures I	4 credits
RADT 1025	Radiographic Procedures I Lab	0 credit
RADT 1030	Radiographic Imaging I	3 credits
RADT 1035	Radiographic Imaging I Lab	0 credit
RADT 1040	Clinical Education I	4 credits
RADT 1120	Radiographic Procedures II	3 credits
RADT 1125	Radiographic Procedures II Lab	0 credit
RADT 1140	Clinical Education II	3 credits
RADT 1220	Radiographic Procedures III	3 credits
RADT 1225	Radiographic Procedures III Lab	0 credit
RADT 1230	Radiographic Imaging II	2 credits
RADT 1240	Clinical Education III	7 credits
RADT 1250	Advanced Patient Care	2 credits
RADT 2020	Advanced Medical Imaging	3 credits
RADT 2030	Radiographic Physics	3 credits

RADT 2040	Clinical Education IV		7 credits
RADT 2140	Clinical Education V		5 credits
RADT 2150	Radiobiology & Protection		2 credits
RADT 2240	Clinical Education VI		7 credits
RADT 2260	Radiography Seminar		3 credits
		Total	64 credits

Successful completion of the medical radiography program qualifies the graduate to sit for the national certification exam, the ARRT.

Course Descriptions

RADT 1015 - Introduction to Radiography and Patient Care (4 credits)
This course provides an overview of the medical radiography profession and program. Topics to be covered include medical terminology, radiation protection, radiographic equipment and basic patient care skills with emphasis on patient communication, age-specific needs and cultural diversity. 4 lecture hours per week.
Corequisite: RADT 1020, 1025, 1030, 1035, 1040
Prerequisite: Acceptance into the Medical Radiography Program

RADT 1020 - Radiographic Procedures I (4 credits)
This course provides the student with instruction in performing radiographic procedures and identifying anatomy of the upper/lower extremities, chest and abdomen with emphasis on radiation protection, surface landmarks and pathology. Image analysis is introduced. 3 lecture, 2 lab hours per week.
Corequisite: RADT 1015, 1025, 1030, 1035, 1040,
Prerequisite: Acceptance into the Medical Radiography Program

RADT 1025 - Radiographic Procedures I Lab (0 credit)
This is the laboratory component of RADT 1020. 2 lab hours per week.
Corequisite: RADT 1015, 1020, 1030, 1035, 1040
Prerequisite: Acceptance into the Medical Radiography Program

RADT 1030 - Radiographic Imaging I (3 credits)
This course provides the student with an in depth analysis of factors affecting image quality. Topics include density, contrast, detail, distortion and technique formulations. Radiographic imaging devices covered include screens, film, grids and beam-limiting devices. Digital imaging will be introduced. 2.5 lecture, 1 lab hours per week
Corequisite: RADT 1015, 1020, 1025, 1035, 1040
Prerequisite: Acceptance into the Medical Radiography Program

RADT 1035 - Radiographic Imaging Lab (0 credit)
This is the laboratory component of RADT 1030. 1 lab hour per week.
Corequisite: RADT 1015, 1020, 1025, 1030, 1040
Prerequisite: Acceptance into the Medical Radiography Program

RADT 1040 - Clinical Education I (4 credits)

This course provides an opportunity for the student to apply theories and develop skills presented in RADT 1010 and RADT 1020. Students will observe, assist and perform basic radiographic procedures with emphasis on upper/lower extremities, chest and abdomen. 192 clinical hours.
Corequisite: RADT 1015, 1020, 1025, 1030, 1035
Prerequisite: Acceptance into the Medical Radiography Program

RADT 1120 - Radiographic Procedures II (3 credits)

This course provides the student with instruction in performing radiographic procedures and identifying anatomy of the vertebral column and bony thorax with emphasis on radiographic anatomy and pathology. Critical thinking and problem-solving skills are encouraged through image analysis and positioning techniques. 2 lecture, 2 lab hours per week. Corequisite: RADT 1125, 1140
Prerequisite: RADT 1015, 1020, 1025, 1030, 1035, 1040

RADT 1125 - Radiographic Procedures II Lab (0 credit)

This is the laboratory component of RADT 1120. 2 lab hours per week.
Corequisite: RADT 1120, 1140
Prerequisite: RADT 1015, 1020, 1025, 1030, 1035, 1040

RADT 1140 - Clinical Education II (3 credits)

This course is a continuation of Clinical Education I providing students with the opportunity to apply theories and further develop technical skills. Emphasis is placed on the bony thorax, spine and film critique. 144 clinical hours
Corequisite: RADT 1120, 1125
Prerequisite: RADT 1015, 1020, 1025, 1030, 1035, 1040

RADT 1220 - Radiographic Procedures III (3 credits)

This course provides the student with instruction in performing radiographic procedures and identifying anatomy of the genitourinary, gastrointestinal and biliary systems, skull and facial bones and advanced mobile and surgical procedures. Critical thinking and problem-solving skills are encouraged through image analysis, positioning techniques and pathology considerations. This course also includes discussion of composition, use and effects of contrast media.
2 lecture, 2 lab per week
Corequisite: RADT 1225, 1230, 1240, 1250
Prerequisite: RADT 1120, 1125, 1140

RADT 1225 - Radiographic Procedures III Lab (0 credit)

This is the laboratory component of RADT 1120. 2 lab hours per week.
Corequisite: RADT 1220, 1230, 1240, 1250
Prerequisite: RADT 1120, 1125, 1140

RADT 1230 - Radiographic Imaging II (2 credits)

This course builds on the theories and concepts introduced in Radiographic Imaging I. Emphasis is on film processing, artifacts, sensitometry, quality assurance, and quality control. Critical thinking and problem solving are encouraged through image analysis. 2 lecture hours per week.

Corequisites: RADT 1220, 1225, 1240, 1250

Prerequisites: RADT 1120, 1125, 1140

RADT 1240 - Clinical Education III (7 credits)

This is a continuation of Clinical Education II providing the student the opportunity to apply theories and further develop technical skills. Students will gain experience in patient management specific to fluoroscopic and advanced radiographic procedures. Emphasis is placed on skull, facial bones, gastrointestinal and genitourinary procedures. 336 clinical hours

Corequisites: RADT 1220, 1225, 1230, 1250

Prerequisites: RADT 1120, 1125, 1140

RADT 1250 - Advanced Patient Care (2 credits)

This course provides instruction in advanced patient care skills. Topics include pharmacology and contrast administration for medical imaging, ethics and law, mobile and surgical radiography. 2 lecture hours per week.

Corequisite: RADT 1220, 1225, 1230, 1240

Prerequisite: RADT1120, 1125, 1140

RADT 2020 - Advanced Medical Imaging (3 credits)

This course is designed to introduce the student to additional imaging modalities and radiation therapy. Topics covered include interventional radiography, sonography, CT, MRI, mammography and nuclear medicine. Cross-sectional anatomy will be introduced. 3 lecture hours per week

Corequisites: RADT 2030, 2040, 2150

Prerequisites: RADT 1220, 1230, 1240, 1250

RADT 2030 - Radiographic Physics (3 credits)

This course presents an in depth analysis of electrical circuitry, transformers, and rectifiers as they relate to x-ray production. Additional topics covered include the construction and function of the x-ray tube, fluoroscopic systems, video systems, AEC and digital imaging. 3 hours lecture per week.

Corequisites: RADT 2020, 2040, 2150

Prerequisites: RADT 1220, 1225, 1230, 1240, 1250

RADT 2040 - Clinical Education IV (7 credits)

This course is a continuation of Clinical Education III with emphasis on students perfecting their positioning skills, critical thinking and effective time management. Emphasis is placed on equipment operation. Students will rotate through advanced modality areas. 336 clinical hours

Corequisites: RADT 2020, 2040, 2150

Prerequisites: RADT 1220, 1225, 1230, 1240, 1250

RADT 2150 - Radiobiology and Protection (2 credits)

This course offers an in depth analysis of ionizing radiation and its effects on matter. Topics include the early and late effects of radiation, dose limits, radiation monitoring and limiting radiation exposure to patients and personnel. 2 lecture hours per week

Corequisites: RADT 2020, 2040, 2150

Prerequisites: RADT 1220, 1225, 1230, 1240

RADT 2140 - Clinical Education V (5 credits)

This course is a continuation of Clinical Education IV with emphasis on mastering all basic procedures and attaining experience in advanced procedures. with further awareness of radiation protection requirements. 240 clinical hours

Prerequisite:, RADT 2020, 2030, 2040, 2150

RADT 2240 Clinical Education VI (7 credits)

This course is a continuation of Clinical Education V with emphasis on developing an autonomous approach to the diversity of clinical situations and successfully adapting to them. Extended advanced modality rotations may be arranged following established guidelines. 336 clinical hours

Corequisites: RADT 2260

Prerequisites: RADT 2140

RADT 2260 - Radiography Seminar (3 credits)

This is a capstone course that provides review and reflection on previous coursework providing the student with a meaningful approach to evaluate areas of strengths and weaknesses and to prepare for credentialing exams and employment. 3 lecture hours per week

Corequisites: RADT 2240

Prerequisites: RADT 2140

II. Faculty

Currently, there are two full-time, tenure-track medical radiography faculty members – the program director and clinical coordinator. JRCERT accreditation requires a full-time program director that holds, at minimum, a masters degree. A full-time clinical coordinator is required if the program has more than six clinical sites or more than thirty students and must hold, at minimum, a baccalaureate degree. No adjunct faculty is employed. Student credit hours produced per 2.5 FTE faculty is 650.

Sherry Floerchinger MA, RT(R)(N)(QM) - Program Director
28 years of experience in the imaging field as a radiographer, nuclear medicine technologist and CT technologist; 18 years of experience in JRCERT accredited radiography programs as clinical coordinator and program director
Assistant Professor, tenure-track

Education:
Masters of Arts in Organizational Learning and Training Technology - University of New Mexico
Bachelor of Science in Vocational Education Studies – Southern Illinois University
Certificate in Nuclear Medicine Technology – University of Kansas, College of Health Sciences School of Medicine
Certificate in Radiology Technology – Research Medical Center, Kansas City, Missouri
ARRT registered in Radiography, Nuclear Medicine and Quality Management

Professional Memberships
American Society of Radiologic Technologists
Utah Society of Radiologic Technologists
Association of Educators in Imaging and Radiologic Sciences

Professional Activities
ACERT Conference – 2008
JRCERT Accreditation Workshop – 2008
JRCERT Site Visitor Workshop - 2008

Currently a site visitor for the Joint Review Commission on Education in Radiologic Technology

Rebecca Lowell, MS, RT(R)(MR) – Clinical Coordinator
Over ten years of experience in the imaging field as a radiographer and MRI technologist
Two years experience in a JRCERT accredited medical radiography program
Faculty, tenure-track

Education
Masters of Science in Radiologic Science with an emphasis in Education – Midwestern State University
Bachelor of Science in Health Administrative Services – Weber State University
Associate Degree in Applied Science – Western Wyoming community College

ARRT registered in Radiography and Magnetic Resonance

Professional Memberships
American Society of Radiologic Technologists
Utah Society of Radiologic Technologists

Professional Activities
ACERT Conference – 2007
JRCERT Accreditation Workshop – 2007

III. Staff

The Medical Radiography Program does not currently have any staff but receives some secretarial support from the Administrative Assistant to the Dean of Business, Science and Health.

IV. Students

Enrollment and Demographic Data			
	Year 1	**Year 2**	**Year 3**
Students			
Actual FTE Enrollment	12	25	
Cost Per FTE	8238.08	NA	
Student/Faculty Ratio	12:1	12:1	
Actual Headcount	12	25	
Gender			
Female	10	15	
Male	2	10	
Actual Tuition			
Tuition to Program	2258.00*	2376.00*	

- includes lab fees

Enrollment/Attrition

Year	# Students Accepted	Current #	Retention
2006	12	All Graduated	100%
2007	13	13	100%
2008	12	11*	92%

* Student withdrew to attend Weber State's sonography program

Constraints to Enrollment
Although the vacancy rates for radiologic technologists have stabilized, there is still a projected need anticipated as baby-boomers age. As a result, Medical Radiography is a program much in demand by students throughout the country. Dixie State's restricted enrollment of 12 students is due to the lack of clinical sites in the area. JRCERT accreditation requires a well-rounded clinical experience to include OR, ER, mobile and fluoroscopic exams. These, for the most part, can only be obtained in hospital settings. As the local community grows and additional healthcare facilities open up, enrollment will eventually increase.

ARRT Pass-Rate
Of the 12 students taking the ARRT exam in 2007, 92% passed. The average score was 92 with 58% of the students scoring in the 100 percentile. The national median score was 84.7.

Placement/Salary
The first medical radiography class completed the program in October 2007. All 12 students who graduated are currently employed in the profession. Three have applied to Weber State's baccalaureate completion program. Four of the thirteen second-year students are currently employed part-time as limited practical technicians at Dixie Regional Medical Center. All students are employed in the state of Utah with 92% having found employment in Washington County. According to the 2007 Radiologic Technologist Wage and Salary Survey, conducted by ASRT, the median salary for a technologist in Utah is $50,073. Starting wage at Dixie Regional Medical Center, in St. George, Utah, is $18.15.

V. Program Costs
Total expenditure for the Medical Radiography program is $172,093, cost per FTE is $8,238.00 and the operational budget is currently $6,651.

VI. Program Assessment
JRCERT accreditation requires programs to develop and implement an assessment plan that identifies benchmarks for the measurement of outcomes in relation to program completion rate, credentialing exam pass rate, job placement rate, clinical performance, problem-solving and critical thinking, communication skills, professional development and graduate and employer satisfaction. This data is required to be analyzed and utilized in continuous improvement of the Medical Radiography program.

Tools utilized in data collection include ARRT exam pass rates, job placement, graduate and employer surveys, clinical evaluations completed by students, lab practicum scores, test scores, and scores on the Student Professional Development Evaluation performed by clinical instructors working with the students in the clinical site.

Benchmarks are set and adjusted by program faculty. JRCERT accreditation does mandate two benchmarks - exam pass rate and job placement. These must be 75% over five years. DSC's Medical Radiography program has increased this benchmark to 85%.

Results of the outcomes assessment are used to improve instruction in the classroom, lab and clinic setting, prioritize budgetary items, and modifications of policies and procedures. Examples of recent changes include eliminating a clinical site as a second-year rotation due to the lack of number and diversity of radiographic exams and changing the Likert scale on the Student Professional Development Evaluation to ensure a more realistic representation of student performance. Data analysis is shared with all communities of interest including college administration, Advisory Committee, clinical instructors and students.

A copy of the Medical Radiography outcomes assessment for 2007 is included in this report.

Program Strengths
The program strengths include dedicated and experienced faculty who promote high ethical standards, state-of-the-art imaging lab equipment housed in the new Russell C.Taylor Health Sciences building, a diverse and committed assortment of clinical affiliates that support the program's mission and goals and a supportive college administration.

Program Challenges
Program challenges include restricted student enrollment due to limited number of clinical sites within a reasonable traveling distance from the institution, a disproportionate number of credit hours (90) for an Associate of Applied Science degree and difficulty in recruiting experienced faculty due to discrepancy between salaries offered and local cost of living particularly housing costs.

Recommendations
One of the biggest hurtles the program faces is the number of clinical sites. As the area grows, new healthcare centers with imaging facilities will open up. The program director has asked IHC for assistance in obtaining Valley View, in Cedar City, as a clinical site but this pursuit has been unsuccessful so far.

With 90 credit hours for an Associate of Applied Science degree in Medical Radiography, it is the hope that eventually a BS degree can be offered in the Imaging Sciences. One possible way of developing this degree is with the addition of special modalities, starting with a sonography program.

OUTCOMES ASSESSMENT PLAN FOR DSC MEDICAL RADIOGRAPHY PROGRAM

2007

OUTCOMES	BENCHMARK	METHODS/TOOLS	TIME FRAME	PERSON/GROUP RESPONSIBLE	RESULTS	PLANNED ACTION
The program's mission statement and goals define the purpose and scope of the program.	Will be consistent with the college's mission statement and goals	Review and compare the college's mission statement/goals to those of the program	Annually	Radiography Faculty, Advisory Committee	A mission statement and goals for the program have been established and are consistent with those of the college	The mission statement and goals were reviewed at the September Advisory Committee meeting. The mission statement was found to be consistent with the college and the goals reflective of desired learning outcomes of a DSC radiography graduate. Will review in September 2008.
	Goals represent intended student learning outcomes	Review goals to ensure they continue to represent desired student learning outcomes	Annually	Radiography Faculty, Advisory Committee	Goals were established to represent the desired learning outcomes for a DSC Medical Radiography student/graduate	
The curriculum reflects current trends in the profession.	Will be consistent with program's mission statement and goals	Review curriculum to assure consistency	Annually	Radiography Faculty, Advisory Committee, Clinical Instructors	The curriculum reflects the mission and goals of the program. Changes in the ASRT Curriculum required close scrutiny of the current curriculum as well as revising the JRCERT matrix. All competency requirements set by ARRT are currently being met.	See narrative. Will review in Fall 2008.
	Follows ASRT curriculum	Review and compare current course offerings with ASRT curriculum, JRCERT course matrix and ARRT requirements	Annually	Radiography Faculty		

Goal 1 – To provide students with the knowledge and skills necessary for professional practice as a radiographer

OUTCOMES	BENCHMARK	METHODS/ TOOLS	TIME FRAME	PERSON/GROUP RESPONSIBLE	RESULTS	PLANNED ACTION
1. Students will demonstrate correct positioning for radiographic procedures.	Students will receive an average score of 85% or higher on lab practicums performed in Procedures I, II and III (1st, 2nd and 3rd semester).	Lab Practicum Evaluation	After the 1st, , 2nd and 3rd Semester	Instructor for Procedures I, II & III	Proc. I = 93.5% Proc. II = 95.6% Proc. III = 93.1% Benchmark met but results were lower than 2006	Will continue to assess this in 2008. Additional outcome to be added – see narrative.
2. Students will be competent in a variety of radiographic procedures.	Students will indicate they were exposed to an adequate number of radiographic procedures to enable competency as indicated by an averaged score of **3.5 or greater** on #12 on the Clinical Site Evaluation	Clinical Site Evaluation	Annually Collected at the end of each Semester	Program Director	Average score on #12 was 3.45 Benchmark not met	Will continue to monitor this by semester. See narrative.
3. Students will remain competent in positioning for radiographic procedures.	Students will complete competency rechecks with a score of 90% or better.	Competency Rechecks	Annually	Clinical Coordinator Program Director	2 rechecks were scored at 84% Benchmark not met	This only represents one class. Will assess in 2008. See narrative.
4. Students will effectively communicate in a healthcare environment.	Students will receive an averaged score of **2.5 or greater on #1**, **#2** and #**3 –** scored individually **-** under **Communication** on the Student Professional Development Evaluation	Student Professional Development Evaluation	Collected at the end of each Semester	Clinical Coordinator	Benchmark met. See narrative for results	The SPDE Likert scale was slightly altered in Spring 2007. See narrative. Will continue to assess in 2008
	100% of second-year students will receive a 90% or higher on their pathology presentation in RADT 2020.	RADT 2020 Grade Book	Annually Spring	Radiography Faculty	All students received a 90% or higher. Benchmark met	Will continue to assess in 2008
	Employers will indicate satisfaction with graduates' interpersonal communication skills as indicated by a **3** or **4** on the Employer Survey, question #2 and #5.	Employer Survey	Annually	Program Director	Not able to evaluate at this time	

5. Students will practice radiation protection for patients and themselves.	90% of students will properly shield during lab practicums.	Lab Practicum Evaluation	After 1st , 2nd and 3rd Semester	Instructor for Procedures I, II and III	1st sem. - 94.1% 2nd sem. – 91.3% 3rd sem. – 96.2% Benchmark met Semesters 1 and 3 were higher than 2007 and Semester II was lower	Will continue to assess in 2008
	Radiation exposure dose to each individual student will not exceed 50 mrem as reflected on the monthly dosimeter reports	Dosimeter Reports	Monthly	Program Director	2 students received an exposure over 50mrem	Benchmark not met. See narrative. Will continue to assess in 2008

Goal 2 – To provide the healthcare community with trained and certified radiographers skilled in diagnostic imaging procedures

OUTCOMES	BENCHMARK	METHODS/ TOOLS	TIME FRAME	PERSON/GROUP RESPONSIBLE	RESULTS	PLANNED ACTION
1. Students entering the program will complete the program.	80% of students admitted into the program, over a 5 year period, will graduate from the program	Commencement Applications/ Retention Rate for Graduating Class	Annually Spring	Health Sciences Advisor Program Director	100% of the students entering the program in 2006 completed the program Benchmark met	Will continue to assess in 2008
2. Graduates will obtain employment as a medical radiographer.	85% of graduates seeking employment will be employed 6 months post-graduation	Graduate Surveys	Annually	Program Director	92% of the students seeking employment as a radiographer found employment Benchmark met	Will continue to assess in 2008
3. Graduates will become certified through the ARRT.	85% of graduates, over a five year period, will pass the ARRT on the first attempt	ARRT Results	Annually	Program Director	92% of the graduates passed the ARRT on the first attempt	Benchmark met. Will continue to assess in 2008
4. Graduates will be clinically competent.	90% of employers responding will indicate they were satisfied with the graduate's ability to perform procedures competently by indicating a score of **3 or higher** in Section 5 of the Employer Survey	Employer Surveys	Annually	Program Director	Not able to evaluate at this time	
5. Graduates will perform as an effective member of the healthcare team.	90% of employers responding will indicate that graduates hired worked effectively in a team environment by indicating a score of **3 or higher** in Section 5 of the Employer Survey.	Employer Surveys	Annually	Program Director	Not able to evaluate at this time	
6. Graduates will indicate satisfaction with the quality of instruction they received at DSC.	85% of graduates will indicate they were satisfied with the quality of instruction they received in the program courses as indicated by a **3** or **4** on **#9** on the Graduate Survey.	Graduate Surveys	Annually	Program Director	Not able to evaluate at this time	

3. To provide an educational environment that enhances critical thinking and problem solving

OUTCOMES	BENCHMARK	METHODS/ TOOLS	TIME FRAME	PERSON/GROUP RESPONSIBLE	RESULTS	PLANNED ACTION
1. Students will successfully perform and analyze two quality control tests.	100% of students enrolled in RADT 1230 will receive an averaged grade of 90% or greater on two quality control labs.	RADT 1230 Grade Book	Annually Fall Semester	Radiography Faculty	70% of students enrolled in RADT 1230 made an average score of 90% or greater	Benchmark not met. See narrative. Will assess in 2008
2. Students will demonstrate critical thinking and problem solving through independent learning formats.	100% of students will earn an 85% or higher in on-line or hybrid courses – RADT 1015 and 2030.	Grade Book from On-line Courses	Annually – Collected at End of Semester Course was Offered	Radiography Faculty	RADT 1015 - 100% earned an 85% or better RADT 2030 – 84% received an 85% or better	Benchmark not met. See narrative. Will assess in 2008
3. Graduates will demonstrate critical thinking and problem solving skills in the working environment.	90% of employers responding will indicate graduates hired demonstrate critical thinking and problem solving skills in their job performance as indicated by a score of **3 or higher** in Section 5 of the employer survey.	Employer Surveys	Annually	Program Director	Not able to evaluate at this time	
4. Students are able to modify positioning for non-routine (trauma) procedures.	The average score on trauma competencies performed in Semesters II, IV and VI will be 85% or higher.	Clinical Competency Form	Semester II, IV and VI	Clinical Coordinator	100% of trauma competencies performed in Semesters II, IV and VI were 85% or higher.	Benchmark met. In 2008, we will monitor Semesters III, V and VI for comparison. See narrative.

4. To graduate students who demonstrate professional behavior and adhere to ethical conduct.

OUTCOMES	BENCHMARK	METHODS/ TOOLS	TIME FRAME	PERSON/GROUP RESPONSIBLE	RESULTS	PLANNED ACTION
1. Students will exhibit professional and ethical behavior in the healthcare setting.	100% of second-year students will score 90% or higher on HIPAA recertification given in RADT 2020.	HIPAA Test Scores	Annually	Radiography Faculty	Only 4 out of the 13 students scored a 90% or better on the HIPAA recert test	Benchmark not met. See narrative. Will assess in 2008 .
	Students will score an average of **2.5 or greater** on **#1-4** in the Professional/Ethical Behavior Section of the Student Professional Development Evaluation.	Student Professional Development Evaluation	Annually Collected at the end of each Semester	Clinical Coordinator	All students received a 2.5 or greater on #1-4 in the Professional section of the SPDE. Benchmark met. See narrative for table.	Will continue to monitor in 2008.
2. Graduates will demonstrate professionalism post-graduation.	80% of post-graduates (one year) will indicate they are a member of a professional society.	Graduate Survey	Annually	Program Director	Unable to evaluate at this time.	
	Employers will indicate satisfaction in the professionalism of graduates by indicating a **3** or **4** on the Employer Survey on question #5.	Employer Survey	Annually	Program Director	Unable to evaluate at this time.	

Outcomes Assessment – 2007
Narrative

Goal 1.1 – Students will receive an average score of 85% or higher on lab practicums performed in Procedures I, II and III.

This goal has been met in 2006 and 2007. Since we have had issues with markers in the clinical setting, it was decided to modify this objective for 2008 to "Students will use proper marker placement on 90% of practicums performed in Procedures I, II and III".

Goal 1.2 - #12 on Clinical Evaluation – "The site provided enough procedures to enable me to obtain confidence in performing exams and complete competencies."

DRMC	400 East	Health Center	Hurricane	Coral Desert	Mesa View	Dr. Smith	WorkMed	Snow Canyon*
3.9	3.0	3.6	3.0	4.0	2.5	4.0	2.6	3.6

A total of 79 clinical evaluations were totaled. Five evaluations were not used due to inability to accurately determine data. When all evaluations were averaged, the result was 3.45, slightly below the benchmark of 3.5. Each site was broken down further and the results recorded in the above table. At some sites, such as WorkMed, as the student advanced through the semesters, the lower the score was for #12. However, this did not remain true for all sites.

Program faculty is aware that some clinical sites may not offer the volume of exams that students feel are adequate to build their skills. Workmed will no longer be used for a second-year student rotation. Logs of students assigned to WorkMed will be reviewed on a regular basis by the Clinical Coordinator to ensure that the student is getting the volume needed to meet clinical objectives. Since Mesa View is a hospital setting that does offer mobile, OR and fluoroscopic opportunities, we will continue to use it as a clinic site with the possibility of only sending one student at a time.

It is noted that all students were able to complete the required competencies for each semester.
*Snow Canyon is a special modality site.

Goal 1.3 – Students will complete competency rechecks with a 90% or better.

	Chest	Upper Extremities	Lower Extremities	Abdomen	Spine
Semester IV	9 – 100% 2 – 97% 1 – 84%*	12 – 100%	12 – 100%	12– 100%	11 – 100% 1 – 95%
Semester V	9 – 100% 3 - missing	12 – 100%	12 – 100%	11 – 100% 1 missing	10 – 100% 1 – 95% 1 – 97%
Semester VI		11 – 100% 1 – 84%*	10 – 100% 1 – 97% 1 - missing		11 – 100% 1 missing

Rechecks are required in the fourth, fifth and sixth semester to assure that competency is maintained. One recheck competency from the chest, upper extremities, lower extremities, abdomen and spine category is required in the fourth and fifth semester. In the sixth semester, one recheck is required from the upper/lower extremities and spine categories.

The above table indicates that in Semester IV one student received an 84% and again in Semester VI.
It is noted that in the categories of upper/lower extremities and spine, the exams performed were diverse. In the upper extremities fingers, hands, wrists, elbows, and shoulders were performed. Lower extremities included foot, ankle, lower leg, and knee. Spines included hip, pelvis, C, T and L-spine.

Missing rechecks does not indicate that these were not done but rather could not be located in the student files at the time data was compiled. Students may have copied the color-coded forms onto white paper resulting in them being overlooked. For better tracking, rechecks will be tallied at the end of each individual semester.

Goal 1.4 – Students will receive an averaged score of 2.5 or greater on #1, #2 and #3 – scored individually – under Communication on the Student Professional Development Evaluation

	Semester I	Semester II	Semester III	Semester IV	Semester V	Semester VI
#1	2.92	2.76	2.96	2.95	2.91	2.87
#2	2.92	2.84	3.0	2.87	2.95	2.95
#3	2.75	2.64	2.93	3.0	2.95	3.0

#1 – Introduces self to patient.
#2 – Explains exam in terms the patient can understand.
#3 – Communicates in a respectful manner with patients and staff.

The benchmark for this goal was met. It was interesting to see that there was not much of a correlation between first-year students and second-year students except for question #3 where scores did improve. Lower scores on #1 and #2 are expected in the first year due to the students' lack of exposure to all exams and just learning to get the routines down. Scores for semesters 1-3 in 2007 were higher than scores in the same semesters in 2006. In the 2006 Outcomes, all semesters were averaged together rather than broken down by semester. It was determined that the data would be more meaningful if done by semester. It is also noted that the Likert scale was changed on the SPDE in Spring 2007.

Some 4th Semester Comments:
"He is very pleasant with the patients and has the personal skills necessary to work in the medical field."
"She is courteous and respectful to patients."
"She is courteous to patients and staff."

Semester 5:
"You are very personable and help your patient to be comfortable…"
"….is interactive with patients."
"…has good rapport with patients…"

Semester 6:
"Does awesome with the communication skills!"

Goal 1.5 – Students will practice radiation protection for patients and themselves.
Radiation exposure dose to each individual student will not exceed 50mrem per semester.

The benchmark for this was changed in 2007 from 20mrem, which turned out to be an unrealistic benchmark, to 50 mrem. At the time it was set, no students had been through the clinical sites so it was only an estimate. 50mrem appears to be more realistic and the program's radiation safety policy states that a student will be counseled when exceeding this dose.

In 2007, there were two incidents where 50mrem was exceeded. The first occurred in the period of July 19 – August 19. A first-year student received a reading of 319mrem. The radiation quality was high energy, greater than 200 keV. In counseling the student, he could not think of a time when he would have been exposed to that level of radiation. He denied being in any special modality areas and did not leave his dosimeter in a fluoro room. Landauer rechecked the readings and verified the 319mrem. Even more perplexing, the student turned in the dosimeter at the end of the summer semester which was the last week of July.

This student was counseled in the importance of time, distance and shielding as well as appropriate location for wearing his dosimeter during clinic time and where to keep it when not in clinic. The reason for the inflated reading was never explained.

The second reading of 51 mrem was received by a second-year student who, by the time the report was received, had already graduated. A final report was mailed to him.

Goal 2.3 – 85% of graduates, over a five year period, will pass the ARRT on the first attempt.

Though this goal was met, it was unfortunate that one student failed the ARRT and is now on her third attempt. Looking back at this student's pre-requisites, she should not have been admitted into the program due to a score of C- in Human Anatomy. The program's policy is to accept only a grade of C or better in pre-requisite courses. It is noted that the program director was not on-board when the student selection process for the first class occurred. Now that the program is better established, everyone associated with the program know and understand the admissions criteria.

The average scaled score was a 92 with 58% scoring in the 100th percentile. The highest area was radiation protection with a 9.5 and the lowest was radiographic equipment with a 9.0.

Goal 3.4 – Students are able to modify positioning for non-routine (trauma) procedures.

	Semester 2 – First-Year Students	Semester 4 – Second-Year Students	Semester 6 – Second-Year Students
Lower Extremity Trauma	1 – Foot	2- Knee 1-Foot 1-Lower Leg 1 - Toe	2 – exam not specified
Upper Extremity Trauma	1-Wrist 1-Forearm	2- Elbow 1-Finger 1- Wrist 1- Hand 1- Thumb 1 not specified	
Shoulder Trauma	1 – "Y"	3 – "Y" 2 - Axillary	1 – Axillary
Cross-Table Lateral C-Spine		8	
Cross-Table Lateral Hip		7	2

100% of the trauma competencies performed in Semesters II, IV and VI received a grade of 85% or higher. The lowest grade received was 96%. It is interesting to note the breakdown of when the competencies were performed. For the second-year class, there were a total of 60 trauma exams to be performed. Of those 60, 39 or 65% were performed in the fourth semester. Only 10% (or 6) were performed in the sixth semester. Of these six, however, two were role-played. This observation prompted a discussion between faculty and it was decided to no longer allow trauma exams to be role-played. These must be performed on a patient. This change will be added to the student handbook and distributed to the new students.

It was also noted that of the 65 possible trauma exams possible for the first-year students, only 4 or 6% were performed in the second semester. This may be due to relatively little exposure to trauma at this stage of clinical education or the student still being unsure of their abilities in trauma situations. Clearly, by the fourth semester, students were getting involved with trauma cases.

For 2008, Semesters III, V and VI will be looked at.

Goal 4.1 – Students will score an average of 2.5 or greater on #1-4 in the Professional/Ethical Behavior section of the SPDE.

#1. Adheres to HIPAA act and maintains confidentiality.
#2. Respects patient diversity and is non-discriminating.
#3. Follows dress code and is well-groomed.
#4. Adheres to department and school's policies and procedures.

	#1	#2	#3	#4
First-Year Students	2.92	2.97	2.94	2.93
Second-Year Students	2.98	2.98	2.97	2.97

When compared to the 2006 results, there was a significant improvement in the first-year students' scores. It is noted, however, that the Likert scale for the SPDE was changed in Spring 2007 which may account for some of the differences.