Five-Year Program Review
Dixie State University
Medical Radiography
Executive Summary
(Review Date: 2013)

Reviewers:
External Reviewer:
Joint Review Committee on Education in Radiologic Technology
20 N. Wacker Drive, Suite 2850
Chicago, IL 60606-3182
www.jrcert.org

2010 Site Visitors: Timothy Skaife, MA, RT(R)
Mary Carrillo, M.B.A., RT(R)(M), CDT

Accreditation History:
First Award: April 7, 2007
Continued: June 1, 2010
Interim: February 2, 2014
Next: February 1, 2018

Internal Reviewers:
Patricia Wintch, Dental Hygiene chair
Jeanne Mortenson, Surgical Technology coordinator

Other Reviewers:
Trustee Liaison Committee
Dixie State University Board of Trustees

Program Description:
The Medical Radiography program is a two-year, full-time program that includes didactic, lab, and clinical experiences at cooperating hospitals, clinics and doctors' offices. It consists of five semesters of academic studies with coordinated practice in area imaging departments and is part of the School of Health Sciences located in the Russell Taylor Health Science Center. The program is competency based and follows the American Society of Radiologic Technologists Curriculum Guide. Graduates receive an Associate of Applied Science degree in Medical Radiography and are eligible to apply to take the American Registry of Radiologic Technologists certification exam. The Joint Review Committee on Education in Radiologic Technology accredits the Medical Radiography Program.

Goals:
The principal goal of the Medical Radiography Program is to prepare students for employment in the field of radiography. The specific goals of the program are:

- Students will develop competence in clinical performance.
- Students will acquire critical thinking and problem-solving skills.
- Students will determine the importance of professional and ethical conduct.
- Students will develop effective communication skills.
- The program will provide the community with skilled entry-level radiologic technology graduates.

For a copy of the full program review and external evaluation report, go to this link:
http://www.dixie.edu/academics/past_program_review_examples2.php
Student learning outcomes on which the program’s assessment plan is based are that students will:

- Demonstrate correct positioning for radiographic procedures.
- Practice radiation protection.
- Be able to modify standard procedures.
- Critique radiographic images.
- Practice patient confidentiality.
- Perform procedures with compassion to all.
- Demonstrate effective oral communication.
- Demonstrate written communication skills.

The curriculum for the Medical Radiography Program follows the established curriculum guidelines set up by the American Society of Radiologic Technologists (ASRT). College credit-bearing courses that must be met include:

- Mathematical/logical reasoning (required)
- Written/oral communications (required)
- Arts and humanities
- Information systems
- Social/behavioral sciences
- Natural sciences

General education courses are designed to assist in developing skills in both oral and written communication, human diversity, scientific inquiry, critical thinking and problem-solving that are required in entry-level radiographers. The knowledge gained from these courses enhances content learned in the radiography program as well as aid in application. The student also experiences personal enrichment outside of the technical curriculum.

**Data Form:**

<table>
<thead>
<tr>
<th>R411 Data Table</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Department or Unit</strong></td>
</tr>
<tr>
<td>2008</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headcount</td>
</tr>
<tr>
<td>With Doctoral Degrees (Including MFA and other terminal degrees, as specified by the institution)</td>
</tr>
<tr>
<td>Full-time Tenured</td>
</tr>
<tr>
<td>Full-time Non-Tenured</td>
</tr>
<tr>
<td>Part-time</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>With Master’s Degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time Tenured</td>
</tr>
<tr>
<td>Full-time Non-Tenured</td>
</tr>
<tr>
<td>Part-time</td>
</tr>
</tbody>
</table>

For a copy of the full program review and external evaluation report, go to this link:
http://www.dixie.edu/academics/past_program_review_examples2.php
With Bachelor's Degrees

<table>
<thead>
<tr>
<th></th>
<th>Full-time Tenured</th>
<th>Full-time Non-Tenured</th>
<th>Part-time</th>
</tr>
</thead>
</table>

Other

<table>
<thead>
<tr>
<th></th>
<th>Full-time Tenured</th>
<th>Full-time Non-Tenured</th>
<th>Part-time</th>
</tr>
</thead>
</table>

Total Headcount Faculty

<table>
<thead>
<tr>
<th></th>
<th>Full-time Tenured</th>
<th>Full-time Non-Tenured</th>
<th>Part-time</th>
</tr>
</thead>
</table>

FTE (A-1/S-11/Cost Study Definition)

<table>
<thead>
<tr>
<th></th>
<th>Full-time (Salaried)</th>
<th>Teaching Assistants</th>
<th>Part-time (May include TA's)</th>
</tr>
</thead>
</table>

Total Faculty FTE

Number of Graduates

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificates</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Associate Degrees</td>
<td>13</td>
<td>11</td>
<td>12</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>Bachelor's Degrees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Master's Degrees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doctoral Degrees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Number of Students—(Data Based on Fall Third Week)

<table>
<thead>
<tr>
<th></th>
<th>08/09</th>
<th>09/10</th>
<th>10/11</th>
<th>11/12</th>
<th>12/13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester of Data: __________<strong>, 20</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total # of Declared Majors</td>
<td>19</td>
<td>41</td>
<td>52</td>
<td>37</td>
<td>47</td>
</tr>
<tr>
<td>Total Department FTE*</td>
<td>18.93</td>
<td>18.53</td>
<td>19.20</td>
<td>24.40</td>
<td>27.87</td>
</tr>
<tr>
<td>Total Department SCH*</td>
<td>2840</td>
<td>2780</td>
<td>2880</td>
<td>3660</td>
<td>4180</td>
</tr>
</tbody>
</table>

*Per Department Designator Prefix

Student FTE per Total Faculty FTE

<table>
<thead>
<tr>
<th></th>
<th>1:8.3</th>
<th>1:11.4</th>
<th>1:10.6</th>
<th>1:12.4</th>
<th>1:15.3</th>
</tr>
</thead>
</table>

Cost (Cost Study Definitions)

<table>
<thead>
<tr>
<th></th>
<th>08/09</th>
<th>09/10</th>
<th>10/11</th>
<th>11/12</th>
<th>12/13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Instructional Expenditures</td>
<td>181,863</td>
<td>142,722</td>
<td>187,359</td>
<td>188,823</td>
<td>189,619</td>
</tr>
<tr>
<td>Cost Per Student FTE</td>
<td>9,607</td>
<td>7,702</td>
<td>9,758</td>
<td>7,739</td>
<td>6,804</td>
</tr>
</tbody>
</table>

Funding

<table>
<thead>
<tr>
<th></th>
<th>08/09</th>
<th>09/10</th>
<th>10/11</th>
<th>11/12</th>
<th>12/13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriated Fund</td>
<td>124,990</td>
<td>95,812</td>
<td>114,495</td>
<td>114,616</td>
<td>111,042</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special Legislative Appropriation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grants of Contracts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special Fees/Differential Tuition</td>
<td>56,873</td>
<td>46,910</td>
<td>64,441</td>
<td>71,265</td>
<td>78,577</td>
</tr>
<tr>
<td>Total</td>
<td>181,863</td>
<td>142,722</td>
<td>187,359</td>
<td>188,823</td>
<td>189,619</td>
</tr>
</tbody>
</table>

For a copy of the full program review and external evaluation report, go to this link:
http://www.dixie.edu/academics/past_program_review_examples2.php
**Program Assessment:**

The Medical Radiography program’s curriculum is based on the 2012 ASRT Radiography Curriculum with objectives that meet or exceed the requirements. Based on the belief that learning is a progression of behavioral changes, the program’s curriculum is structured as a sequence of learning that will assist students in becoming confident in their knowledge and skills necessary for professional practice. General education prerequisites give students a solid academic foundation on which to build and contribute to the success of the student once they are in the program. Didactic core courses are sequenced in a logical order progressing from the simple to the more complex and are integrated with the clinical courses to allow the application of skills and theory. Students receive a syllabus with detailed objectives for each radiography course.

Procedure courses are constructed to allow cognitive learning in the classroom followed by the opportunity to practice in a lab setting. Students are then tested on various procedures through lab simulation. The x-ray equipment that was purchased for the program’s new lab is the same equipment that is found in many of the clinical sites, thus allowing for easier transfer of skills from lab to the clinical arena.

The program has developed and implemented a plan to assess program effectiveness and student learning based on its mission and goals. The plan has clear outcomes with set benchmarks and indicates when and who will be responsible for collection and review of data. Specific tools have been developed and continually refined to effectively measure each outcome. Examples include various rubrics for written papers and oral presentations, clinical competency forms and the Student Professional Development Evaluation form. Data is collected at the end of semester, or in the case of employer and graduate surveys, on an annual basis. The assessment plan incorporates:

- Program completion rate
- Clinical performance and clinical competence
- Problem solving skills and critical thinking
- Communication skills
- Professional development and growth
- Graduate and employer satisfaction

Analysis of the outcome data is used in strategic planning, developing the annual budget, revision of curriculum, improvement of instruction and modification or creation of policies and procedures. The outcomes assessment is shared with all communities of interest including the program’s advisory committee, college administration, clinical instructors and students.

**Internal Reviewer Feedback**

Both internal reviewers provided exemplary ratings on 22 of the 31 criteria on the 5-year program review self-study feedback rubric.

Criteria with exemplary ratings included but were not limited to the following:

- Program learning outcomes are clearly articulated.
- Results of previous program review are stated clearly and addressed well.
- Professional certification and employment rates are impressive.

For a copy of the full program review and external evaluation report, go to this link: [http://www.dixie.edu/academics/past_program_review_examples2.php](http://www.dixie.edu/academics/past_program_review_examples2.php)
For a copy of the full program review and external evaluation report, go to this link:
http://www.dixie.edu/academics/past_program_review_examples2.php

- Faculty are highly experienced and actively engaged in professional development courses.
- Innovative interprofessional partnerships are being incorporated into the curriculum.
- Explains how technology has affected the way faculty teach their courses.
- Provides a current curriculum map and evaluates how the program and GE learning outcomes are addressed across the curriculum.
- Describes how findings from the assessment data are being used to improve teaching and learning.

Satisfactory ratings were given to the following:

- Outlines the areas and specialties (faculty development and recruitment) the department wishes to hire in the future, and provides a rationale for recruitment in those areas.
- Describes the adequacy of technology resources.
- Describes the current instructional and research/creative work facilities of the department.
- Relevant general education learning outcomes are listed.
- Provides a narrative explanation of the significant trends in student data.
- Describe the advising process, and how advising quality is evaluated and maintained.

One criteria was given a developing rating:

- Describes the administrative support staff in the department, and makes suggestions to support staff.

Criteria with a rating of unclear/needs more information included:

- Consider whether or not the students served by the academic program reflect the diversity of the student body as a whole.
- Presents an analysis of strengths and weaknesses; includes strategies to capitalize on strengths and addresses weaknesses.

Recommendations, Plans and Improvements:

Program Strengths:

- Experienced, dedicated and knowledgeable faculty
- All classes have had 100% pass rate on the ARRT (national certification exam) with the exception of the 2007 class, which was 91%.
- The total mean score on the ARRT has been higher than the national average for all classes. As an example, the national total mean score in 2011 was 85.1 while the total mean for Dixie State graduates was 92.5.
- The percentile rank on the ARRT has consistently been in the 90s. For example, the 2013 graduates’ percentile rank was 99%.
- The average placement rate over the past five years is 86%.
- The program benefits from strong support from the community and clinical sites.
The program has a retention rate of 96% losing only 2 students since its inception. These withdrawals were due to personal and health reasons and not performance issues.

Program Weaknesses/Challenges:

- The program is unable to expand due to limited clinical sites in the area. Both Las Vegas and the Salt Lake area have been explored; however, sites are already committed to other radiography programs.
- Both faculty members will be retiring within the next five years. Recruiting will need to be nationwide to find qualified and experienced applicants.
- There is no DSU baccalaureate program for Medical Radiography. Many of the AAS graduates go on to obtain their BS degree through Weber State University but would prefer to stay at Dixie if they could. It should be noted that these are degrees in Radiologic Sciences where students specialize in various modalities such as MRI, CT and sonography.
- A consistent weak area in graduate surveys is surgery. The program would benefit from the purchase of a C-Arm with which students could practice in lab.
- Although the placement rate for program graduates is respectable, it could be improved on if graduates were more willing to move away from the area to find employment.

Comprehensive Plans for the Future:

- Secure a competitive compensation package for health sciences faculty to ensure quality of instruction and attract qualified applicants for open faculty positions.
- Work to resolve shortage of clinical sites, specifically at Valley View Medical Center in Cedar City.
- Consider seeking approval for an increase in lab course fees to offset the expense of maintaining and repairing aging x-ray equipment.
- Obtain funding for purchase of a C-arm to provide surgical radiography experiences in lab.
- Offer a DSU baccalaureate completion program in health sciences for associate degree graduates in Medical Radiography and respiratory therapy.

Institution’s Response:

DSU’s administration congratulates the Medical Radiography Department for its efforts in preparing DSU Medical Radiography students to meet their educational goals. The program outcomes in national certification exam pass rates and employment rates are a positive indication of the program’s success.

The administration also thanks the Medical Radiography faculty for addressing program challenges by successfully securing Valley View Medical Center as a clinical site for Medical Radiography students. Additionally, program faculty requested and were awarded funding from the DSU Perkins Grant for purchase of a C-arm for the lab. The administration commends the program director for her leadership of the program in ensuring excellent program and student learning outcomes. Additionally, she was able to recruit a highly qualified individual for the coordinator/faculty person left vacant by a faculty retirement.

Although the administration recognizes the importance of a pathway for Medical Radiography graduates in obtaining a baccalaureate degree, the administration encourages program faculty to look at options other
than offering a baccalaureate degree at DSU. The administration has concerns about adequate enrollment in a baccalaureate degree program given 11 to 12 students graduating per year from the DSU associate degree Medical Radiography program, as well as limited fiscal and faculty resources. Given that resources in higher education are always scare, the administration appreciates efforts on the part of the Medical Radiography faculty to find creative ways to offer the opportunity for baccalaureate education for program graduates; e.g. seeking articulation agreements with existing Medical Radiography baccalaureate programs similar to what the Respiratory Therapy (RT) program faculty were able to secure with Idaho State University’s online RT baccalaureate program.

Administration also encourages Medical Radiography program faculty to consider increasing program capacity as faculty/clinical resources and graduate employment opportunities allow. Although the program emphasis is the pedagogy related to preparing students for employment in the field of radiography, involving students in undergraduate research will provide an additional opportunity for enriching experiences for program faculty and staff.

The Medical Radiography program faculty and students are fortunate to have a state-of-the-art lab equipped with the latest radiology equipment. The administration recognizes the challenges imposed by the lack of centralized funding for the repair, maintenance, and replacement of expensive equipment. The administration will work with program faculty in exploring possibilities for the provision of necessary funding. In the interim, the administration encourages program faculty to continuously evaluate the adequacy of program course fees that are partially utilized for equipment repair and maintenance.

Overall, the administration commends DSU’s Medical Radiology Department for its hard work. DSU is pleased with the competent leadership and the progress the department is making, and the administration looks forward to the future of the program.