**EXECUTIVE SUMMARY of STUDENT LEARNING OUTCOMES**

Radiation therapy is a radiologic imaging sciences specialty that is one of the disciplines in a radiation oncology center. Radiation therapists practice in a cooperative effort between medical and radiation oncology physicians, medical physicists, dosimetrists, oncology nurses and dietitians. Radiation therapists are responsible for accurately recording, interpreting, and administering the treatment prescribed by radiation oncologists. Radiation therapists help physicians use multiple imaging modalities including; fluoroscopy, x-ray, and/or computed tomography to localize and outline anatomical areas for treatment and patient alignment. These responsibilities require highly specialized clinical skills as well as complex critical thinking in order to effectively contribute to the team approach of patient centered treatment.

**Program Effectiveness**

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| **Program Effectiveness Measure and Performing Standard** | **Data Collected** | **Analysis** |
| Annual program completion rate class of 2019. There is no performance standard for this measure. | 17/17 = 100% | Admitted 19 students, and 19 completed. |
| ARRT Certification Board examination pass rate (class of 19). Performance standard, 75% pass rate on 1st attempt within six months of graduation. | 14/17 = 82% | This is the lowest first time pass rate that the program has experienced. In further review, the program was informed that students did not sufficiently study for the exam. Of the 8 students that did not pass initially, 6 of 8 have retaken it and passed (17/19=89%) are ARRT certified. |
| Job placement rate (class of 18). Performance standard, 75% of active job seekers will be placed within 12 months of graduation. This standard includes students that have gone back to school, and excludes those not willing to move for employment. | 16/17 = 94% | All 2018 graduates are either employed or in school one year post graduation. |
| Graduate satisfaction (class of 18). Performance standard set by program; 95% of returned graduate surveys will rate satisfaction 4 or 5, on a 1-5 Likert scale. | 3/4=75% (graduate survey)  15/19=79% (exit survey) | Class of 18 (graduate survey), 3 out of 4 ranked their satisfaction with the program as Very Good, 1 ranked their satisfaction as Fair. Three respondents skipped the question.  Class of 18 exit survey 4 ranked their satisfaction as excellent, 11 ranked it as very good, 4 ranked it as Good.  Class of 17, 6/7=85.7% ranked their satisfaction with the program as Excellent (n=3), Very Good (n=3) and Good (n=1) |
| Employer satisfaction (class of 17). Performance standard set by program; employers will rank graduates “above average” in OVERALL QUALITY measure. | 3/4=75% | Class of 18, 3/4 returned employer surveys ranked graduates as above average or greater; 1 ranked graduate as “Good”.  Class of 17, 5/6 returned employer surveys ranked graduates above average or greater; 1 ranked graduate as “Good”  Class of 16, 4/4 returned employer surveys ranked graduates above average or greater students “above average” |

**Provide a response to last year’s Advisory Board review of the program’s Effectiveness report:**

* The program had the Class of 2019 to register for an ASRT student membership which offers them access to the newly implemented review exams in addition to the review materials provided by the program. The program also began giving review materials in the Fall semester of the last year in addition to the Winter semester so that the students will have more materials to review which seemed to help with the Class of 2019’s board scores in comparison to the Class of 2018.

#### Describe how the program’s outcomes support GVSU mission, strategic plan, and relevant school plan:

The program’s mission is to provide competent, entry level Radiation Therapists who shape their profession, society, and lives. The program provides students opportunities to develop technical knowledge and personal skills necessary for a career in the radiation sciences. The curriculum is designed to combine compassion with integrity in order to shape a student into a professional. The program provides a unique learning environment which includes state of the art equipment, class room instructions, as well as multiple clinical rotations. By recruiting the help of highly qualified Radiation Oncology faculty, students acquire skills necessary to become successful Radiation Therapists.

**List all of the program’s goals**:

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| **Learning Outcome** | **Year of Last Assessment** | **Assessed This Year** | **Year of Next Planned Assessment** |
| Students will demonstrate clinical competence | FY 17-18 | AY 18-19 | 2020 |
| Students will develop critical thinking and problem solving skills | FY 17-18 | AY 18-19 | 2020 |
| Students will communicate effectively to patients and healthcare professionals | FY 17-18 | AY 18-19 | 2020 |
| Students will demonstrate professional behavior in clinical areas and the profession | FY 17-18 | AY 18-19 | 2020 |

**Outcomes and Past Assessment**

**Programmatic Goal 1:** Students will demonstrate clinical competence

**Is this outcome being reexamined? X** Yes No

**Assessment Activity**

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| **Outcome Measures**  *Explain how student learning will be measured and indicate whether it is direct or indirect.* | **Performance Standard** *Define and explain acceptable level of student performance.* | **Data Collection**  *Discuss the data collected and student population* | **Analysis**   1. *Describe the analysis process.* 2. *Present the findings of the analysis including the numbers participating and deemed acceptable.* 3. *Historical data for comparison* |
| Students will appropriately simulate treatment delivery. | 90% of lab evaluations will score 3 or higher on a Likert 1-5 scale, for the objective of “**Evaluate accuracy of machine parameters”**. | Collection will be during the 1st semester throughout RIT 331 (class of 20) | 1) Average scores were calculated from lab evaluations  2) Class 2020: 133/133 (100%) met the benchmark  3) Class 2019: 117/117 (100%) met the benchmark |
| 4th  semester throughout RIT 431 (class of 20) | New measure, data to come |
| Students will demonstrate correct positioning of patients for treatment. | 95% of clinical evaluations will score “fair” or better on student’s first clinical evaluation for “**ORGANIZATION OF DUTIES:**Logical & efficient performance”. Fair is considered our minimum acceptable score. | Collection will be in the 2nd semester after 1st clinical evaluation (class of 20). | 1) Trajecsys was used to collect and tally the data from previous semester evaluations  2) Class of 2020:52/52 (100%) met the benchmark,  {31/52, 60% “good” or “excellent”}  3) Class of 2019: 57/57 (100%) met the benchmark,  {46/57, 80.7% “good” or “excellent”} |
| 3rd semester after 2nd clinical evaluation (class of 20). | 2) Class of 2020: 65/68 (96%) met the benchmark,  {58/68, 85.2 “good” or “excellent”} |
| Students will illustrate correct simulation of a variety of patients | 95% of clinical evaluations will score “fair” or better on student’s 2nd clinical evaluation for “**ADAPTABILITY:**Achievement of routine procedures on non-routine patients”. | Collection will occur during the 2nd clinical evaluation, completion of the 3rd semester (class of 20). | 1) Trajecsys was used to collect and tally the data from clinical evals.  2) Class of 2020: 65/68 (96%) met the benchmark,  \* same 3 evals as above  3) Class of 2019: (100%) met the benchmark  Class of 2017: (100%) met the benchmark  Class of 2018: (98%) met the benchmark |
| 95% of clinical evaluations will score “good” or better on student’s last clinical evaluation for “**ADAPTABILITY:**Achievement of routine procedures on non-routine patients”. | Collection will occur during the last clinical evaluation, completion of the 5th semester (class of 19). | 1) Trajecsys was used to collect and tally the data from clinical evals.  2) Class of 2019: 132/133 (99%) met the benchmark  3) Class of 2018: 126/139 (91%) benchmark not met.  Class of 2017: 55/57 (97%) met the benchmark  Class of 2016: 67/69 (97%) met the benchmark |

**Interpretation of Results**

**Extent this learning outcome has been achieved by students:**

* Class of 2019 & 2020 have met the established program benchmarks for Goal #1 and associated SLO’s. Using the four learning objectives, both the class of 2018 and 2019 have met our standard for goal #1 respectively.
* **Program strengths and opportunities for improvement relative to assessment of outcome:**
* Strength: Utilizing the lab for their preparatory clinical education and with the addition of the VERT, it will further strengthen the laboratory learning. Also having Trajecsys so students can access information quickly and easily so that they can easily access clinical data (Comps/profs, evaluations, time records, etc). All sites are currently utilizing Trajecsys for student clinical data.
* Improvement: Acuity functionality has been inconsistent which has affected clinical preparation especially for the third year students. We anticipate that the Class of 2021 will be less prepared for clinic than the Class of 2020.
* Per the JRCERT suggestion from feedback on the interim report, the program added an additional data collection timeframe for the SLO’s that only had one timeframe of collection. This is new for the 2018-19 assessment cycle.

**Discuss planned curricular or program improvements for this year based on assessment of outcome:**

* The lab final (Class of 2020) incorporated a written portion as well as a demonstration which incorporated critical thinking skills which we discussed incorporating into the initial laboratory course so they will be even more prepared for clinic. The Class of 2021 will also have a written portion of for their lab final as well in addition to the demo.
* GVSU has approved funding for the program to receive a CT. This will help with students’ clinical preparedness by giving them both linear accelerator and CT simulation experience at the university. The advisory board suggested to incorporate non-routine setups and scenarios in laboratory courses at the 2018 meeting. The program will implement this suggestion with the VERT and CT as all of the lab demonstrations need to be changed to accommodate the new equipment. The program has asked for Clinical Instructor/Staff help with revising the labs.

**Programmatic Goal 2:** Students will develop critical thinking and problem solving skills

**Is this outcome being reexamined? X** Yes No

**Assessment Activity**

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| **Outcome Measures**  *Explain how student learning will be measured and indicate whether it is direct or indirect.* | **Performance Standard** *Define and explain acceptable level of student performance.* | **Data Collection**  *Discuss the data collected and student population* | **Analysis**   1. *Describe the analysis process.* 2. *Present the findings of the analysis including the numbers participating and deemed acceptable.* 3. *Historical data for comparison* |
| Student will compare current treatment images to treatment plan and determine accuracy of positioning. | Students will successfully pass IGRT competencies during their clinical rotations throughout the program (At least one completed by the 3rd semester and 2 or more by the 5th semester). | Data will be collected following the 3rd semester. | 1) Trajecsys was used to collect and tally the data from completed comps during time frame using “study” filters  2) Class of 2020: 15/18 (83.3%) had 1 completed, new measure for 18-19 assessment |
| Data will be collected following the last clinical rotation (5th semester). | 2) Class of 2019: 17/17 (100%) met the benchmark  3) Class of 2018: 19/19 (100%) met the benchmark  Class of 2017: 16/16 (100%) met the benchmark |
| Students will propose treatment plans for the treatment of breast cancer | Scores >90% on the breast problem based learning assignment (PBL) will indicate students use systematic reasoning to examine and evaluate information and ideas and then synthesize their conclusions to propose new  perspectives and solutions | Data will be collected following the Fall semester, RIT 430 course (class of 19). | 1) Using 90% as “good” to equate it to other measures, evaluation and tally of these scores from Bb grade book completed  2) Class of 2019: 16/17 (94%) met the benchmark  3) Class of 2018: 16/19 (84%) benchmark not met.  Class of 2017: 11/16 (69%) benchmark not met. |

**Interpretation of Results**

**Extent this learning outcome has been achieved by students:**

* In regards to imaging, the program will seek information from the Clinical Instructors regarding progress on this SLO. The benchmark was met for the 5th semester (Class of 2019), but not for the 3rd semester (Class of 2020). The program needs to establish if the performance standard is appropriate for the data collection timeframe. The program suggests to have one IGRT competency by the end of the 3rd semester and at least two by the end of the last semester.

**Program strengths and opportunities for improvement relative to assessment of outcome:**

* The Class of 2019 met the benchmark for this Goal and associated SLO’s. The Class of 2017 and 2018 did not meet the benchmark. The program changed this SLO from previous years to be more specific which also incorporated the Advisory board’s suggestion for this Goal & SLO.

**Discuss planned curricular or program improvements for this year based on assessment of outcome**:

* Once the program acquires the new CT, can incorporate simulation based and treatment positioning critical thinking activities into laboratory courses. This will also solidify concepts incorporating the VERT.

**Programmatic Goal 3:** Students will communicate effectively to patients and healthcare professionals

**Is this outcome being reexamined? X** Yes No

**Assessment Activity**

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| **Outcome Measures**  *Explain how student learning will be measured and indicate whether it is direct or indirect.* | **Performance Standard** *Define and explain acceptable level of student performance.* | **Data Collection**  *Discuss the data collected and student population* | **Analysis**   1. *Describe the analysis process.* 2. *Present the findings of the analysis including the numbers participating and deemed acceptable.* 3. *Historical data for comparison.* |
| Students will describe procedures to patients | 95% of clinical evaluations will score “fair” or better on student’s first clinical evaluation for “**COMMUNICATION SKILLS:** Interpersonal skill with **patients**”. Fair is considered our minimum acceptable score. | Collection will be in the 2nd semester after 1st clinical evaluation (class of 20). | 1) Trajecsys was used to collect and tally the data from previous semester evaluations. “Fair” is considered minimum competence  2) class of 2020: 66/66 (100%) met the benchmark  3) Class of 2019: 64/65 (99%) met the benchmark  Class of 2018: 57/57 (100%) met the benchmark |
| 95% of clinical evaluations will score “good” or better on student’s last clinical evaluation for “**COMMUNICATION SKILLS:** Interpersonal skill with **patients**”. | Collection will occur during the last clinical evaluation, completion of the 5th semester (class of 19). | 1) Trajecsys was used to collect and tally the data from previous semester evaluations. “good” is considered appropriate competence in this skill for this stage of the program.  2) Class 2019: 129/133 (97%) met the benchmark  3) Class of 2018: 135/139 (97%) met the benchmark  Class of 2017: 56/57 (98%) met the benchmark |
| Students will communicate effectively with healthcare staff | 95% of clinical evaluations will score “fair” or better on student’s first clinical evaluation for “**COMMUNICATION SKILLS:** Interpersonal skill with **staff**”. Fair is considered our minimum acceptable score. | Collection will be in the 2nd semester after 1st clinical evaluation (class of 20). | 1) Trajecsys was used to collect and tally the data from previous semester evaluations. “Fair” is considered minimum competence  2) Class of 2020: 66/66 (100%) met the benchmark  3) Class of 2019: 63/65 (97%) met the benchmark  Class of 2018: 57/57 (100%) met the benchmark |
| 95% of clinical evaluations will score “good” or better on student’s last clinical evaluation for “**COMMUNICATION SKILLS:** Interpersonal skill with **staff**”. | Collection will occur during the last clinical evaluation, completion of the 5th semester (class of 19). | 1) Trajecsys was used to collect and tally the data from previous semester evaluations. “good” is considered appropriate competence in this skill for this stage of the program  2) Class of 2019: 129/133 (97%) met the benchmark  3) Class of 2018: 131/139 (95%) met the benchmark  Class of 2017: 55/57 (97%) met the benchmark |
| Students will Demonstrate effective formal presentation skills. | 100% of students will make effective use of eye contact, voice projection, pacing and language choices that are appropriate for the assignment placing them in the “proficient” category | Collection will occur following in class presentations in RIT 432, 5th (final) semester (class of 19) | 1) Rubric for this SLO which was provided by the GVSU General Education Committee which ranks the student as proficient, progressing, or baseline.  2) Class of 2019: 17/17 (100%) met the benchmark  3) Class of 2018: 16/19 (84%) benchmark not met.  Class of 2017: 16/16 (100%) old rubric, met the benchmark |

**Interpretation of Results**

**Extent this learning outcome has been achieved by students:** Class of 2019 & 2020 met the benchmark for this Goal & SLO. This is an improvement from the Class of 2018 who did not meet the benchmarks for this Goal & SLO.

**Program strengths and opportunities for improvement relative to assessment of outcome: Strength-**Class of 2020 has met the benchmark at 100% for each SLO associated with this Goal. **Improvement**- The program suggests to add another timeframe of evaluation of effective and formal presentation skills which will be in line with the JRCERT recommendation.

#### Discuss planned curricular or program improvements for this year based on assessment of outcome:

The program suggests to add another timeframe of evaluation of effective and formal presentation skills which will be in line with the JRCERT recommendation.

**Programmatic Goal 4:** Students will demonstrate professional behavior in clinical areas and the profession

**Is this outcome being reexamined? X** Yes No

**Assessment Activity**

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| **Outcome Measures**  *Explain how student learning will be measured and indicate whether it is direct or indirect.* | **Performance Standard** *Define and explain acceptable level of student performance.* | **Data Collection**  *Discuss the data collected and student population* | **Analysis**   1. *Describe the analysis process.* 2. *Present the findings of the analysis including the numbers participating and deemed acceptable.* 3. *Historical data for comparison* |
| Students will demonstrate professional behavior | 95% of clinical evaluations will score “good” or better on student’s clinical evaluation for “**PROFESSIONAL CONDUCT:** Mannerisms, cleanliness, neatness”. | Collection will be in the 2nd semester after 1st clinical evaluation (class of 20). | 1) Using the Trajecsys student reporting system, a report of the class of 19 students was run from March –May (time of evaluation) with evaluation of the responses for “Professional conduct”.  2) Class of 2020: 57/66 (86%) benchmark not met  3) Class of 2019: 59/65 (91%) benchmark not met  Class of 2018:  Class of 2017: 56/57 (98%) met the benchmark |
| 95% of clinical evaluations will score “excellent” on student’s clinical evaluation for “**PROFESSIONAL CONDUCT:** Mannerisms, cleanliness, neatness”. | Collection will be in the 5th semester after 4th clinical evaluation (class of 19). | 2) Class of 2019: 78/98 (80%) benchmark not met  {95/98 (97%) reported “Good” or better}  3) Class of 2018: 82/103 (80%) benchmark not met  Class of 2017:39/43 (91%) benchmark not met |
| Students will integrate networking into program and profession. | All students (class of 19 and 20) will participate in student essay and poster competition at the state or national level. | Data will be collected at the end of Fall semester each year. | 2) Class of 2020: 0/19 (0%) benchmark not met  Class of 2019: 19/19 (100%) met the benchmark  3) Class of 2018: 19/19 (100%) met the benchmark  Class of 2017: 16/16 (100%) met the benchmark |

**Interpretation of Results**

**Extent this learning outcome has been achieved by students** *(Use both direct and indirect measure results)***:** The Program has not achieved the benchmarks set and will seek advisory input for suggestions for improvement for the Class of 2021. Class of 2020 did not attend the state conference (MSRT) this year as they were at our Society’s national conference (ASRT) the same week. MSRT is where students typically participate in the essay and poster competition. This has been consistent each year since 2017. Class of 2019 all students attended MSRT and RSNA conference. Students had to interact with vendors, listen to poster presentations, and be an attentive audience member in a lecture at RSNA. All students had to report this information in a project for RIT 401.

**Program strengths and opportunities for improvement relative to assessment of outcome**: The Program provides the students with professional networking opportunities (RSNA) for little cost. The Program obtains passes for admission free of cost and provides transportation to this experiential learning activity by renting van’s. Clinical Instructors were previously sent a checklist regarding professionalism that should be included into the students’ clinical orientation. The program will check with Clinical Instructors and Staff to see if that is being utilized.

#### Discuss planned curricular or program improvements for this year based on assessment of outcome: Ensure that the professionalism checklist is being used in the clinical orientation and perhaps the program may need to create program specific checklist. The program also suggests to add a professionalism topic to the patient care course (RIT 310).