DEPARTMENT REPORT
OF
PROGRAM LEARNING OUTCOMES ASSESSMENT

Department: RAT

Program (Degree): Radiologic Technology (RAT)

Type of Degree: X AAS ____ AA ____ AS ____ ATS ____ AIS

Chairperson: Denise Moore Date: 6/05/03

Person(s) Interviewed: Denise Moore

I. Program Curriculum: A description of the basis for the program curriculum (i.e., how it is derived and validated). Include accreditation organizations, advisory committees or external groups that influence curriculum. Describe curriculum review activities including the review of course master syllabi. *

Program outcomes were reviewed (and re-approved) by the radiologic technology advisory committee in Spring 03 to validate continued relevancy and compliance with the *2002 Standards for an Accredited Educational Program in Radiologic Sciences published* by the Joint Review Committee on Education and Radiologic Technology (JRCERT). The department conducts assessment of 10 KPIs to measure its success in meeting program outcome expectations. Results are measured against published benchmarks and quality improvement actions are implemented where needed.

The program's curriculum was revised during winter and spring quarters, 2003 to remain current and compliant with the 2002 edition of the *Professional Curriculum For Radiography* as prescribed by the American Society of Radiologic Technologists. Additionally, the RAT advisory committee reviewed and approved all planned curricular revisions at the Spring 02 and Fall 02 meetings. During Spring 2003, master syllabi for every RAT course were reviewed and where necessary, revisions were formally submitted through the College's Curriculum Review process. Revised courses include: RAT 111, 112, 212, 213, 214, 218, 232. New courses include: RAT 132-Ethics and Law in Medical Imaging and RAT 229-Quality Management in Medical Imaging. Deleted courses include: RAT 211, 217, 237 (lab for 231).

In September 2000, the Joint Review Committee on Education in Radiologic Technology (JRCERT) conducted an onsite re-accreditation review of the program. The program received an outstanding exit report and was subsequently received the maximum eight-year re-accreditation award. The program is required to submit an interim re-accreditation report in September 04 and is tentatively scheduled for its next full self-study submission in 2007.

II. <u>Program Learning Outcomes</u>: A description of what you intend for students to know (cognitive), think/feel (affective), or do (psychomotor), when they have completed your degree program. A suggested manageable number of outcomes should be in the range of five to ten. Describe Program Learning Outcomes review activities. *

An entry-level graduate with an Associate of Applied Science Degree in Radiologic Technology from Sinclair Community College will be able to:

Learning Outcomes	Related Courses
1. Demonstrate professional behaviors that are consistent with the delivery of humanistic, moral, and ethical patient care.	RAT 111, 112, 131, 132, 212, 213, 214, 218, 229; ALH 103, 106
2. Demonstrate the ability to comprehend, apply and evaluate information and concepts relevant to the entry-level skill of a radiographer.	RAT 111, 112, 121, 122, 123, 131, 132, 199, 212, 213, 214, 218, 219, 222, 226, 229, 232; BIO 131, 132; PHY 106; HIM 121; ALH 103, 104, 106, 140
3. Apply the principles of radiation protection for patients, self, and others.	RAT 111, 112, 121, 122, 123, 132, 212, 213, 214, 218, 222, 226, 229, 232; PHY 106
4. Deliver competent radiographic practice with entry-level skill related to fluoroscopic, general and mobile radiographic procedures.	RAT 111, 112, 121, 122, 123, 131, 132, 199, 212, 213, 214, 218, 219, 222, 226, 229, 232; BIO 131, BIO 132; PHY 106
5. Analyze the finished radiograph for quality and acceptability, and demonstrate sound problem-solving techniques in correcting unacceptable radiographs at entry-level competence.	RAT 111, 112, 121, 122, 123, 212, 213, 214, 218, 222; 229, BIO 131, BIO 132

A review of program outcomes and an audit of the curriculum are conducted on a biennial basis as part of the college's department review process. A curriculum revision is currently underway (May 03) and once approved, the curriculum reflected above will become effective in Fall 2003.

III. <u>Assessment Method(s)</u>: A measurable indicator of success in attaining the stated learning outcome(s). The methodology should be both reliable and valid. Please describe in detail.

a. Formative Assessment Methods(s) and Description: a measurable indicator of student in-progress success in attaining the stated learning outcome(s).

Formative Assessment Method(s) and Description: a measurable indicator of student in-progress success in attaining the stated learning outcome(s).

Each technical course has a comprehensive written exam administered by faculty at the end of the quarter. In addition, at the conclusion of the RAT student's first year, a "first-year comprehensive assessment" examination is administered. Students must achieve a 70% or higher mastery level to pass. Students who do not receive the minimum performance score are required to repeat the examination following formal remediation. Remediation is facilitated by enrollment in RAT 265, Radiology Seminar, a variable-credit-hour course. Students work one-on-one with a faculty member who assists them in developing an individualized remediation plan. Student progress in the curricular sequence is dependent upon successful completion of the remediation plan.

During the first year curriculum, students who fail to complete courses with a "C" grade or higher are withdrawn from the program. They are eligible to apply for reinstatement one time only. During the second year, a student can repeat each RAT course once. If a student does not pass a course after two attempts he/she is withdrawn from the program. A mastery level of 71% or higher in lecture (didactic) and a mastery level of 80% or higher in clinical is required to pass.

A clinical competency assessment plan is implemented for each RAT student. The plan includes competency objectives and assessments focusing in three major categories: clinical performance standards, quality performance standards, and professional performance standards. Students use the plan to guide progress through the clinical competency component of the program. Students must complete minimum competency expectations each clinical quarter; however, to meet graduation requirements in the normal time frame, students are encouraged to exceed minimum competency requirements.

During each quarter, two (initial and mid-quarter), one-on-one counseling sessions are held with each student by clinical faculty. At the conclusion of each clinical quarter, faculty meet individually with students to review performance in the three performance categories described above. Departmentally developed performance review forms are used for this purpose.

Hospital staff provide input regarding student clinical progress. Special forms that focus on behavioral skills are used for this purpose (*RT Evaluation Form)*. Specific staff members have been specifically trained to support program faculty by serving as evaluators of student clinical performance. These individuals are formally recognized by JRCERT.

b. Summative Assessment Method(s) and Description: a measurable indicator of end-of-program success in attaining the stated program learning outcome(s).

For the didactic portion of the program, a two-credit-hour capstone course (RAT 226: Synopsis in Radiography) is required of all RAT majors. This course is a synopsis of the entire RAT curriculum. Students must complete a comprehensive written examination, representative of the national certifying examination. Student performance on this examination results in the final grade in RAT 226. Four practice examinations are required in

preparation of the final exam. Students are permitted opportunity to repeat these tests until a passing score is achieved. Students must successfully complete at least three of the four practice exams to be eligible for the final exam. The final examination must be passed at a 71% or higher mastery level.

For the clinical component of the program, a four-credit-hour capstone course (RAT 214: Clinical Competency Capstone) is required of all RAT majors. Included in this capstone course are three major areas of practice concentration: mobile radiography, general radiography, & fluoroscopy. Evaluations for each practice area include clinical performance standards, quality performance standards, and professional performance standards; students must achieve an 80% or higher mastery level to pass. The final assessment form used for this process has been revised to improve evaluator reliability and clarify performance expectations for students.

Overall program assessment and evaluation is an on-going process and the plan includes the following components: program outcomes, learning facilitation strategies, key performance indicators (KPIs), and actions for unmet criteria (see attachment). Each KPI (see attachments: KPI 1-12) is tracked and results documented with comments indicating actions taken when benchmarks are unmet. In spring of 2002, Core Competencies were defined and subsequently approved by the RAT advisory committee (fall 2002 meeting). Core competencies are primarily affective domain components of program outcomes. Evaluation of student achievement of core competencies is gathered annually through feedback from employer members of the advisory committee and graduating students (self assessment).

IV. **Results:** A description of the actual results of overall student performance gathered from the summative assessment(s). (see III.b.)

See attached *Program Review and Assessment Plan* and *KPI documents 1-10*

V. **Analysis/Actions:** From analysis of your summative assessment results, do you plan to or have you made any adjustments to your program learning outcomes, methodologies, curriculum, etc.? If yes, describe. If no, explain.

See attached *Program Review and Assessment Plan* and *KPI documents 1-10*

VI. **General Education:** A description of where and how within the major the three primary general education outcomes* (communication, thinking, values/citizenship/community) are assessed.

a. Where within the major do you assess written communication? Describe the assessment method(s) used. Describe assessment results if available.

Communication skills are components of the core competencies for the program and are assessed throughout the curriculum. For instance, major writing assignments are linked to technical courses in each academic quarter. For evaluation purposes, most faculty use either the gen-ed writing checklist or a self-generated rubric formulated to assess assignment-specific content areas. Students' writing skills continue to be an area of weakness. Use of the gen-ed assessment

tool and assignment specific rubrics has helped narrow the inter-rater reliability gaps across faculty as evaluators.

b. Where within the major do you assess oral communication? Describe the assessment method(s) used. Describe assessment results if available.

Oral skills are assessed and evaluated in every clinical course through observation of student-to-patient interaction. Students' oral skills are routinely assessed as a component of the clinical competency procedure using a standard program form. The final clinical evaluation also addresses oral skills.

c. Where within the major do you assess thinking? Thinking might include inventing new problems, seeing relationships and/or implications, respecting other approaches, demonstrating clarity and/or integrity, or recognizing assumptions. Describe the assessment method(s) used. Describe assessment results if available.

RAT faculty are currently attempting to more clearly define strategies to effectively assess critical thinking and problem-solving skills of students. In addition, the department is working toward realizing improved consistency and reliability of the thinking assessment process. As a component of core competencies, graduating students and employer members of the advisory committee provide assessment feedback on problem solving skills of graduates (See KPI attached).

As an added note, I would like to express concern about faculty capacity to do reliable assessments in the area of critical thinking. In my opinion, this area persists as a poorly defined gen-ed outcome for the college. Our department needs help with understanding various components of critical thinking from the gen-ed perspective, e.g., what are the expected thinking skills outcomes and what mechanisms are available to formally, objectively and reliably measure and validate thinking outcomes for graduates of SCC?

d. Where within the major do you assess values/citizenship/community? These activities might include behaviors, perspective, awareness, responsibility, teamwork, ethical/professional standards, and service learning or community participation. Describe the assessment method(s) used. Describe assessment results if available.

Core competencies for the RAT program include professional skills related to citizenship, values and community. Assessment of these competencies is ongoing for the student's professional growth. For example, each clinical course in the curricular sequence includes development of professional and ethical behaviors. These competencies are assessed at scheduled and impromptu times throughout the quarter. The following assessment tools are used: mid-term performance review, final quarterly evaluations, clinical competency assessments (level 1, 2 and final), and RT feedback/evaluation forms. Furthermore, RAT curriculum revisions are currently progressing through the KeyFile process and will become effective beginning fall 2003. Revisions include the addition of a new course, *Ethics and Law in Medical Imaging,* to expand emphasis on legal and ethical applications in radiologic technology.

Service learning opportunity is provided to Sinclair-based second-year RAT students through a one-day rotation at a local clinic for the homeless. For Hocking-based radiology students, a similar service learning experience is currently being developed. During this learning opportunity, students perform non-radiologic functions involving patient care such as patient intake, monitoring and recording vital signs and patient weight measures. Students provide feedback about this service learning experience through a reflective paper assessed by the clinical coordinator. Overall, based on reflection paper feedback, the majority of students enjoys this rotation and sees it as a positive professional development experience.

Radiologic Technology Program
Program Review and Assessment Plan

Program Philosophy and Assessment Plan
The radiologic technology program is committed to a quality educational experience for all students. The program mission is to prepare students for entry-level competency as staff radiographers in the practice areas of general, fluoroscopic and mobile radiography. Periodic assessment and evaluation of student learning provides an indication of student competency development and identifies program effectiveness in meeting its mission.

The assessment plan is a quality management program directly linked to the program's philosophy (mission) and contains four components: program outcomes (O), learning facilitation strategies (LF), key performance indicators/measures (KPI) and actions for improvement for unmet criteria (A). Program assessment is an ongoing process that provides information on how well the program is meeting its mission. Benchmarks are established as standard achievement goals and when unmet, quality improvement strategies are implemented. Although assessment of student learning and program effectiveness is an ongoing process, the specific assessment cycle for each KPI is individually identified (see each KPI for specific timing and assessment actions).

Program Outcomes (O): Expected learning results as a consequence of the educational process.

O1: Demonstrate professional behaviors that are consistent with the delivery of effective, humanistic, moral, and ethical patient care.

O2: Demonstrate the ability to comprehend, apply and evaluate information and concepts relevant to the entry-level skill of a radiographer**.**

O3: Apply the principles of radiation protection for patients, self and others**.**

O4: Deliver competent radiographic practice with entry-level skill related to fluoroscopic, general and mobile radiographic procedures**.**

O5: Analyze the finished radiograph for quality and acceptability, and demonstrate sound problem-solving skills in correcting unacceptable radiographs at entry-skill.

Learning Facilitation Strategies (LF): Teaching and learning methodologies used throughout the technical curriculum.

LF1: Lectures: Covering theories of knowledge-based outcomes
Related Program Outcome: O1 - O5

LF2: Group learning activities leading to discovery/active learning enhancing teamwork and critical thinking skills.
Related Program Outcome: O1 - O5

LF3: Laboratory experiences: Application of theory
Related Program Outcome: O1 - O5

LF4: Clinical experiences: "Real world" experience enabling student to progressively build clinical competencies.
Related Program Outcome: O1 - O5

LF5: Communication exercises: written assignments in every quarter in didactic and clinical courses; oral critiques in clinical courses.
Related Program Outcome: O1, O4, O5

LF6: Student presentations: Film analyses & case studies in each clinical course.
Related Program Outcome: O2, O4, O5

Key Performance Indicators (KPI): Assessment measures/methodologies and benchmarks

KPI-1: Exit interview/graduate satisfaction results
- Anecdotal remarks of students are used for QI of program effectiveness
- Majority of students indicate satisfaction on 80% of the items.

Related Program Outcome O1 - O5
Assessment Cycle: annually @graduation

KPI-2: Scores on the national ARRT certification examination:
- Pass rate ≥ 90% each year and ≥ 94% for most recent five-year period.
- Average scaled total test score ≥ national average
- Section scores ≥ national average

Related Program Outcome: O2 - O5
Assessment Cycle: Annual ARRT Exam Report

KPI-3: Graduate satisfaction on 1-year follow up survey:
- 80% of students indicate satisfaction on individual items on graduate survey
- Student perception of core competency skills comparing competency at program start and program completion, 80% of students at program exit will rate growth at level 3 or higher in individual items.

Related Program Outcome: O1-O5
Assessment Cycle: annual @graduation and 1 year out.

KPI-4: **KPI-4:** Employers' satisfaction/perception (advisory committee employer members) of core competency skills of graduates and employer feedback on 1-year graduate employer survey:
- 80% of respondents rate 3.0 or higher (4.0 scale) on all items on the core competency assessment (new benchmark May 03)
- Mean score of 4.0 or higher (5 point scale) on all items on employer follow up survey.
- Anecdotal remarks included on ALH employer survey form

Related Program Outcome**:** O1 -O5
Assessment Cycle: annually

KPI-5: Pass rate: final clinical competency evaluations:
- ≥ 95 % on 1st attempt and 100 % on final attempt

Related Program Outcome**:** O1-O5
Assessment Cycle: semi-annual @ course offerings

KPI-6: Pass rate: final comprehensive written exam:
- 90% on 1st attempt (increased benchmark June 03)
- 100% pass rate 2nd attempt

Related Program Outcome: O2-O5
Assessment Cycle: semi-annually

KPI-7: Pass rate: 1st year assessment exam:
- 80% on 1st attempt
- 100% pass rate on 2nd attempt (increased benchmark June 03)

Related Program Outcome**:** O2-O5
Assessment Cycle: semi-annually

KPI-8: Course completion rates:
- > 80% or higher for all RAT courses

Related Program Outcome: O1-O5
Assessment Cycle: quarterly

KPI-9: Graduation rate (program completion rate):
- 75% of first technical quarter students persist to graduation (new benchmark June 03)

Related Program Outcome: O2, O4
Assessment Cycle: annually

KPI-10: Job placement rate:

- JRCERT standard of 75% in 6 months

Related Program Outcome: O1, O4, O5
Assessment Cycle: annually

KPI-11: Professional growth and development: (New KPI January 2002)

- Service Learning Experience (SLE): 80% of students perceive the experience as a positive professional development activity as indicated on follow up reflection papers.
- A team of SCC students annually competes in the quiz bowl competition.
- Student perception of growth development on core competency survey: 80% indicate growth in understanding professional and ethical responsibility.
- Employer satisfaction on core competency survey: 80% of employers indicate satisfaction at ≥3.0.

Related Program Outcome: O1 and O2
Assessment Cycle: annually

KPI-12: Problem solving and critical thinking: (New KPI January 2002)

- Student performance on RAT 213 Film critique test: mean score of >75%.
- Student pass rate on case studies in RAT 111, 112, 212.
- Student satisfaction on core competency survey items 6, 7 & 8: 80% of students indicate growth at level 3 or higher
- Employer satisfaction on core competency survey items 6, 7 & 8: 80% of employers indicate satisfaction at level 3 or higher

Related Program Outcome: O1 and O2
Assessment Cycle: annually

Actions for Unmet Criteria (A): **Quality improvement measures put into place when benchmarks have not been achieved.**

A1: Review of pertinent curricula (didactic and clinical courses) and restructure in areas of weakness.
Related KPI: 1 – 9, 11, 12

A2: Review each section of ARRT & corresponding final exam sections falling below limits and assess correlated didactic courses; assess individual student performance in related courses.
Related KPI: 2, 6, 8

A3: Review theory and clinical experiences correlating to items falling outside benchmarks.
Related KPI: 1, 3, 4, 11, 12

A4: Review each student's difficulties in meeting clinical competencies & remediate &/or additional clinical assignments.
Related KPI: 5

A5: Initiate retention strategies to effectively resolve assessment findings falling outside acceptable limits.
Related KPI: 2, 5, 6, 7, 8, 9, 11, 12

A6: Work with appropriate resources to ensure compliance with JRCERT Standards.
Related KPI: 8, 9, 10

KPI-1: Exit Interview/Survey Results

KPI-1: Exit interview survey results

- Anecdotal remarks of students are used for QI of program effectiveness
- Majority of students indicate satisfaction on 80% of the items.

Related Program Outcome O1 - O5
Assessment Cycle: annually @graduation

Track/ Year	Results (Scannable Survey Form Used)	Actions
A-99	Majority of students satisfied with time assigned general, fluoro, and second shift assignments but 46% would prefer more time assigned to mobiles and 54% would like more time in problem-solving activities; they rate RAT faculty as better than non-RAT faculty in each area assessed; lab support facilities and resources were highly regarded	Clinical faculty are planning for increased use of case studies to bolster problem-solving and critical thinking skills.
B-99	31% desire more time in general rad; 38% more time on 2nd shift; 69% desire more problem solving activities; all faculty ratings high; verbal complaints about CMC were noted (feelings of isolation and no interest on part of techs); positive comments about Lisa and Bob; suggest assigning more faculty time	CMC: Cyndy Stachler given release time to be avail to meet new students on 1st day; orientation sessions have been formally scheduled; a critical thinking workshop is planned for faculty later in the year to enhance problem-solving skills for students and to increase the use of critical thinking assignments.
A-00	Majority of students satisfied with time assigned general, fluoro, mobile, special rotations, film critique, problem solving/teamwork experiences but 40% indicate a desire for additional time for second shift assignments; majority rate faculty in all areas as "better than" non-RAT faculty; high ratings on lab and its use and CD ROM resources (100 and 93%). Numerous comments about lecture packet and video tape problems in bookstore; many suggested doing RAT 199 as independent study; Sociology complaints related to relevance.	Report findings to bookstore to work with Jody to improve packet availability; sending out videos to professional company to duplicate; move toward developing RAT 199 as a web-based course; met with Donna Fletcher to discuss changes in SOC 145 offering to make more relevance; continue to work with FMC in resolving problems. Note: FMC officially closed operations 8/1/00
B-00	Most students satisfied with rotations, facilities assigned time and faculty. They would like increased opportunity to rotate across clinicals and would like to get more formal instruction in positioning in every qt. Numerous complaints about SOC 145 and its relevancy to RAT practice.	RAT faculty are in the process of creating a more formalized, planned positioning review across the clinical curriculum. Met with SOC faculty to revise course content to be more applicable. They agreed to restructure the course using a text and content that approaches cultural competency development more parallel to health care delivery. Implementation planned for SP01.
A-01	Met benchmark except in the area of 2nd shift rotation. This group does not like 2nd shift assignments because it interferes with job obligations; some expressed anxiety over the structure of the 226 class. Students suggested a Web course format for RAT 199.	Monitor future grp responses to see if 2nd shift is problematic; check student perception of 226 in future tracks; maintain resources at current levels. Plan to implement a Web-based format for RAT 199 in W-02.
B-01	Met benchmark except in special modality rotations: 46% would like more time. Subjective comments include overwhelming positive notes; however, significant comments were made regarding clinical courses and consistency across CIs. Clinical rotations were suggested to broaden student	CI committee met to develop a clinical rotation plan based on partnering facilities to equalize clinical opportunities based on volume and types of procedures. CIs are scheduled to rotate through partnered facilities.

	experiences and equalize clinical opportunities.	
A-02	Students continue to ID clinical site inconsistencies in opportunity and across clinical faculty. Students request more rotation time in mobile exams and special modality rotations. Students ID CD Rom units as problematic, mostly related to access and open lab hours.	CD ROM units access was resolved by re-hiring PT student worker to be available during evening and Saturday hours. Clinical rotation plan is to be implemented in Fall 02 to include student and faculty assignment changes.
B-02	Overall satisfaction in all rated areas. Initiating rotation of clinical faculty in mid-stream was viewed by many to be a negative primarily because it was "change." Rotation at Sam North for digital exposure is perceived by all to be a positive addition. Some would like more time at CMC.	Discussed email response time with faculty in RAT 199 to encourage more rapid turn-around for feedback. This will need to be monitored for future problems. CD ROM access problem seems to be less of an issue.
A-03	CD ROM access continues to be an issue across students. This track of students indicates a desire for more clinical time in most areas. Variability across CIs persists as a perceived problem by students.	CI faculty are to meet to review clinical policies and procedures. Retiring faculty and new hires may help provide for a more balanced faculty group. Met with Mindy Shelley to review digital content emphasis in RAT 199.
B-03	Pending	

Radiologic Technology Program
Assessment Data

KPI-2: Scores on the national ARRT certification examination:

- Pass rate ≥ 90% each year and ≥ 94% for most recent five-year period.
- Average scaled total test score ≥ national average
- Section scores ≥ national average

Related Program Outcome: O2 - O5
Assessment Cycle: Annual ARRT Exam Report

Related Program Outcomes: O2 – O5

Track/ Year	Actual Results			Actions
	SCC/ARRT Pass - Rate	**SCC/ARRT Mean**	**ARRT section < National Ave**	
A-99 B-99	100%- - 100%	85% - 83%	Sec A,B,C,D > national Ave; Sec E =national Ave	Section D continues as the lowest performance for the grp but continues to exceed national average. Increase emphasis on procedures in synopsis class
A-00 B-00	100% - 100%	77% -85%	Sec A,B,C,D E> national Ave; Dropped in sec B	Sec B average lowest area while sec D increased. Monitor sec B in next report.
A-01* B-01	100% - 100%	77% - 84%	Sec A,B,C,D E > national Ave; Sec B continues to be lowest	Section B is again the lowest section for SCC and is the lowest section for ARRT results. Investigate with other program directors to see if this is consistent. (See note below*)
A-02 B-02	100% - 100%	78.5% - 83%	Sec A,B,C,D E > national Ave; Sec B continues to be lowest	Lowest performance is again Section B. Other Ohio educators report similar trends. Review curriculum and look at increasing emphasis on equipment considerations.
A-03 B-03	100% -	75%	pending	A-track mean score dropped to 75%. Pay special attention to ARRT mean score outcomes.

Note:
* One student failed SCC exam on first attempt, but following 1-1 remediation with program faculty, the student successfully passed the exam and passed ARRT on first attempt..

Scores are consistently meeting benchmarks. Consider increasing benchmark on pass rate to 100% after A-03 results are returned.

Radiologic Technology Program
Assessment Data

KPI-3: Graduate satisfaction on 1-year graduate survey and core competency survey:

- 80% of students indicate satisfaction on individual items on graduate survey
- Student perception of core competency skills comparing competency at program start and program completion, 80% of students at program exit will rate growth at level 3 or higher in individual items.

Related Program Outcome: O1-O5

Assessment Cycle: Core competency survey annual 1 year grad survey

Track/ Year	Actual Results	Actions
A-98 B-98	♦ No items < 2.0 (5.0 scale) noted; increased scholarship availability was noted by several students.	W.Lee Shadle Scholarship Fund established but currently is not large enough for annual awards.
A-99 B-99	8 students responded; all items ≤ 2.0 (5.0 scale) The item with the lowest score (2.0) related to the program's influence on becoming involved in the community.	Begin planning development of a service-learning component of the program to address community involvement.
A-00 B-00	8 students responded; only one item scored less than 80% (6 of 8 students) satisfaction: pertained to increased chance for promotion as a result of the program. Program outcome assessment items showed high importance and high satisfaction ratings for each outcome statement. Slight negative gap scores emerged for each item as a result of this survey which indicates that students agree with the importance rating for each program outcome statement and they are generally satisfied that the program helped them achieve them although some gap exists between importance and satisfaction. Of open comments, student indicated dissatisfaction with UVMC and recommends placement of a faculty member as CI.	Faculty from the program will increase presence at UVMC to oversee CI. Action should focus on encouraging a better survey return rate. This can be accomplished by discussing the importance of survey completion before exit from the program.
A-01 B-01	Only 4 students responded; and 2 items scored less than 80% satisfaction: pertained to the program's impact on developing citizenship and community involvement. Program outcome assessment items showed high importance and high satisfaction ratings for each outcome statement. Gap scores for program outcomes were improved over last year scores (no negative gap exists this year).	Implement the service-learning component as an option during one clinical day rotation. Measure student satisfaction once this initiative is fully implemented. Investigate methods of gathering feedback regarding program effectiveness of core competencies, e.g., citizenship, thinking, professionalism.
A-02 B-02	Core competency survey administered the first time (B-02) to attempt to measure student perception of growth of core competencies. 100% of the students rated growth in all items (B-02)	
A-03 B-03	The mean score rating for A-03 cohort on the core competency assessment = 73%.	In all competencies where no growth was indicated, the entering skill level was rated

		as good or outstanding by the students.

Radiologic Technology Program
Assessment Data

KPI-4: Employers' perception (advisory committee employer members) of core competency skill level of graduates and employer feedback on 1-year graduate employer survey :

- 80% of respondents rate 3.0 or higher (4.0 scale) on all items on the core competency assessment (new benchmark May 03)
- Mean score of 4.0 or higher (5 point scale) on all items on employer follow up survey (benchmark changed for survey 00-01)
- Anecdotal remarks included on ALH employer survey form

Related Program Outcome**:** O1 -O5
Assessment Cycle: annually

Track/ Year	Actual Results	Actions/Comments
A-99	*Survey administered Aug 1999* SCC College wide employer survey results: 6 ed dimensions were assessed with >78% ratings of good to very good with improved ratings for *job-related tech knowledge and quality of work* Employer suggestions for improved training focused on improved customer service, IV training	Customer service/relations will continue to be a primary focus of all clinical courses. RAT 131 is constantly updated to address patient care issues. RAT 226 emphases on patient care will increase its focus on customer service and ethical dilemmas.
B-99 A-00	Critical thinking and problem solving skills scored below benchmark (77%) as did communication /interpersonal skills (76%).	Discussed results with local department heads to identify specific weaknesses. Film analysis and customer service skills were identified by 3 of 4 managers as areas to focus attention. Clinical faculty increases attention to patient communications while supervising clinical performances, increased emphasis in RAT 131 on patient communications. Faculty are developing case studies for implementation in RAT 111, 112, 212, 213.
B-00 A-01	All items on employer survey exceeded benchmark $\geq$ 4.0. Reply rate is lower n=44 for ALH) due to poor graduate survey return rate.	Discuss the importance of survey participation with graduates and assess return rate next year. Consider a mechanism to gather feedback from employer members of RAT advisory committee
B-01 A-02	All items on employer survey exceeded benchmark $\geq$ 4.0. Reply rate improved over last yr (n=55 for ALH) but is still low due to low graduate survey return rate. Film analysis and enthusiasm were identified as weaknesses.	Advisory committee approved Core Competency Assessment process to be administered in fall 02 as a mechanism to get more RAT-specific employer feedback. Adjusted film critique to focus on increased problem solving. Film analysis in RAT 213 is primarily a critical thinking process.
B-02 A-03	Core competency assessment by employer members of the advisory committee indicated below benchmark results in 6 or 12 items assessed. Members believed that the 5-answer choice format with a choice of "neutral" may influence findings. Employer follow up survey by IPR pending	Core comp form adjusted to delete the choice of "neutral" to force respondents to make a decision of agree or disagree. Compare results with Fall 03 to determine trend.

Radiologic Technology Program
Assessment Data

KPI-5: Pass rate: final clinical competency evaluations:
- ≥ 95 % on 1st attempt and 100 % on final attempt

Related Program Outcome**:** O1-O5
Assessment Cycle: semi-annual @ course offerings

Track/ Year	Total # Students	% Pass 1st Attempt	Total % Pass on Repeats	Actions/Comments
A-99	15	80%	100%	♦ 3 students from the same clinical facility repeated general radiographic competencies and 1 also repeated mobile competency. ♦ Political problems at this facility created attitude problems for staff and students. Program and hospital department officials met to identify quality improvement measures to include: ♦ Adjustments to work schedules of clinical staff ♦ Group discussion with clinical staff ♦ 1:1 discussions with specific clinical staff ♦ Group discussions with students ♦ Modifications of student assignments to rooms and staff
B-99	15	100%	100%	♦ No repeats, no action required
A-00	15	87%	100%	♦ 2 students received no pass on final comps: ♦ 1 student = fluoro ♦ 1 student = fluoro and mobiles-this student (UVMC) complained. Resignation of typical CI and replacement with SCC faculty created a conflict that was resolved through discussions.
B-00	13	100%	100%	♦ No repeats.
A-01	11	100%	N/A	♦ No Repeats, no actions taken
B-01	13	97%	100%	♦ 1 student failed first attempt at General rad assessment. No problems noted
A-02	12	100%	N/A	♦ No Repeats, no actions taken
B-02	20	98%	100%	♦ 1 student failed the general rad assessment. Faculty note extreme demand on completing assessments on so many students. Student assignments place higher pressure on some faculty. Need to evaluate student placements to level out the faculty workload disparity.
A-03	16	94%	100%	♦ 1 student failed mobile assessment. Need to continue to monitor faculty-student placements to equalize faculty workloads related to final assessments.

Radiologic Technology Program
Assessment Data

KPI-6: Pass rate: final comprehensive written exam:

- 90% on 1st attempt (increased benchmark June 03)
  - 100% pass rate 2nd attempt

Related Program Outcome: O2-O5
Assessment Cycle: semi-annually

Track/ Year	Actual Results				Actions
	N	Mean Score	% Pass Rate 1st Attempt	% Pass 1st & 2nd Attempt	
A-99	15	72	73%	93%	4 repeats; 3 successful; 1 failed; mean score increased with repeat exam adjustment
B-99	16	78	69%	100%	4 repeats; 4 successful; required repeaters to formally enroll in RAT 265 for remediation
A-00*	15	77	93.%	100%	1 repeat; 1 successful; required repeater to formally enroll in RAT 265 for remediation
B-00	13	79	85%	100%	2 repeats; 2 successful repeat attempts following remediation via RAT 265
A-01	11	77	91%	100%	1 repeat; 1 successful repeat attempt following remediation via RAT 265
B-01	13	77	100%	100%	Reviewed and revised exam eliminating persisting problematic questions
A-02	11	79	100%	100%	Item analysis revealed 2 high miss questions in radiation biology that persist. Instruction in RAT 232 will be addressed to increase emphasis
B-02	20	78	100%	100%	Rad bio and procedures have lower than normal means (73%); monitor for trends.
A-03	17	75	100%	100%	Mean scores for each section were equal across all sections. Tech was lower than usual as well as rad bio. Check for correlation on ARRT exam

Radiologic Technology Program
Assessment Data

KPI-7: Pass rate: 1st year assessment exam:

- 80% on 1st attempt
- 100% pass rate on 2nd attempt (increased benchmark June 03)

Related Program Outcome**:** O2-O5
Assessment Cycle: semi-annually

Track/ Year	Actual Results				Actions
	N	**% Pass Rate 1st Attempt**	**# Pass 2nd Attempt**	**# Pass Rate 3rd Attempt**	
A-99	14	64%	3	2	No learning remediation required
B-99	14	43%	5	2	1 student dropped before completing repeat. Review test items to revise problem items. Discuss the importance of this test with students and encourage them to review in advance of 1st attempt.
A-00*	15	87%	2	N/A	*Took exam in RAT 213 with B-00 using CBT. See comments for B-00
B-00	15	60%	6	N/A	9 of 15 1st time pass; all successful on 2nd attempt. This was a disastrous attempt at CBT. Too many problems with technical support and test construction. CBT postponed indefinitely.
A-01	10	50%	4	1	1 student enrolled in RAT 265 remediation
B-01	13	62%	3	0	Faculty led grp remediation for 2nd attempt; 3rd attempt remediation by student under faculty direction; 2 students failed 3rd attempt and special permission was given to allow for 4th attempt. Students not taking 1st attempt seriously. Begin requiring RAT 265 after 1st attempt.
A-02	11	82%	2		Marked improvement in 1st time pass rate. Imposed RAT 265 policy has had positive impact.
B-02	21	48%	7	4	One of the lowest pass rates to date with one of the smartest classes. Reviewed test for problem questions and revised as needed. Students admit they are working too much and not enough review/study time.
A-03	15	68%	5	0	Maintain benchmark and continue to reinforce importance of exam to students
B-03	26	58%	11	0	Requiring RAT 265 seems to have a positive impact of the number of attempts needed for 100% of the students to pass. Continue this practice and evaluate results. Need to revise all versions of the test.

*Took exam 1 quarter later to provide opportunity for CBT.

Radiologic Technology Program
Assessment Data

KPI-8: Course completion rates:

- > 80% or higher for all RAT courses

Related Program Outcome: O1-O5
Assessment Cycle: quarterly

Qt/Year	Actual Results	Actions
W 99	All courses > 75% benchmark however BIO 131 has high failure/withdraw rate	Apply retention strategies identified in the department retention plan.
SP 99	All courses > 75% benchmark	Non required
SU 99	All courses > 75% benchmark	Non required
F-99	All but BIO 131 (70.4%) has a courses completion rate > 75% benchmark and BIO 131 has high failure/withdraw rate	Apply retention strategies identified in the department retention plan. Officially offer faculty-led study groups for students.
W 00	All courses > 75% benchmark however BIO 131 has high failure rate.	Apply retention strategies identified in the department retention plan. Officially offer faculty-led study groups for students. Investigate the potential of modularizing BIO sequence across 4 qts.
SP 00	All courses > 75% benchmark	Non required
SU 00	All courses > 75% benchmark	Benchmark adjusted up to 80%
F 00	BIO 131, RAT121 and RAT 131 were below 75% benchmark. BIO 131 persists with the highest attrition = 49%. RAT 121 = 31% attrition RAT 131 = 41%	A task force with reps from RAT and BIO applied for a learning challenge grant to develop a modularized approach to the BIO 131/132 sequence. The grant application was denied; however, other alternatives are currently under review. In addition, BIO 107 and other gen-ed courses are being considered as program admission requirements. High attrition in RAT 121 & 131 are unusual. This may have been a unique occurrence. Monitor next qt findings to check for trends.
W 01	Overall course completion rate for the qt was 94%; retention average for the quarter was 86%; however, BIO 131 and RAT 121 had retention rates below benchmark (58% and 65% respectively).	A special admission track (Track C) is planned for SP01 to help offset low program enrollments due to high attrition rates.
SP 01	Overall course completion rate for the qt was 95%; retention average for the quarter was 81%; however, BIO 131 section for repeaters showed dismal results: 21% retention rate for new Track C. BIO 132 also had lower than normal retention rate: 65%.	Track C is a disaster and will not be offered again in the near future. Higher than normal attrition relates to high numbers of re-tracker enrollments. These students were high-risk students due to prior academic failures.
SU 01	Overall course completion rate for the qt was 93%; retention average for the quarter was 92%	No quality improvement actions taken during summer break based on exceeding benchmarks.

FA 01	Overall course completion rate for the qt was 96%; retention average for the quarter was 87%; however, BIO 131 (52%) and RAT 121 (72%) continue to persist as high attrition courses.	Although BIO stats are consistently low, RAT 121 seems to have improved slightly. Review draft of new ASRT curr release next qt. (or as soon as it is made available) to study revisions for A&P subject matter. No new admissions requirements are going to be implemented at this time. Faculty consideration of curriculum revisions are pending ASRT curriculum approval process. Faculty comments are forwarded to OSRT for educator review.
WI 02	Overall course completion rate for the qt was 96%; retention average for the quarter was 90%; however, BIO 131 (55%) and RAT 121 (70%) continue to persist as high attrition courses.	No new admissions requirements are going to be implemented at this time. Faculty consideration of curriculum revisions are pending ASRT curriculum approval process expected June 02. First qt attrition in RAT 121 and BIO 131 persists. PT student lab assistant position re- filled in hopes to provide increased study opportunities for new and current RAT students.
SP 02	Overall course completion rate for the qt was 96%; retention average for the quarter was 91%. BIO 132 retention rate was improved at 83%.	RAT and BIO jointly submitted a budget proposal for a dedicated lab space facility for RAT BIO and SUT BIO courses. This will permit development of a modularized, active learning approach to A&P instruction.
SU 02	Retention was 100% for all RAT-major courses.	A&P RAT-BIO budget request was denied. Faculty are considering an early course enrollment process for Pre-RAT majors prior to program entry to allow students to enroll in A&P without the demand of other tech courses.
FA 02	Overall course completion rate for the qt was 96%; retention average for the quarter was 91%. Marked improvement in BIO 131 (80%) and RAT 121 stats (77%).	Continued Implementation plans for early completion/enrollment option for BIO 131 & BIO 132 in advance of technical studies effective W02. Measure attrition in RAT 121 in Fall 03 to gauge impact on program attrition rates. The expected outcome is improved course retention rates and improved program retention rates.
W 03	Overall course completion rate for the qt was 93%; retention average for the quarter was 85%. BIO 131 retained 74% of students to include RAT and Pre-RAT majors. RAT 121 retained 67% down from the previous qt.	1st qt to allow pre-RATs to enroll along with RAT majors. 2 sections of the course was offered and restricted to major classification. SP 03 course schedule will allow both groups to jointly enroll.
SP 03	BIO 131 retention was 58% and BIO 132 was 71%	New benchmarks focusing on RAT courses only show all RAT courses well above benchmark. PHY 106 showed 100% retention rates.

Radiologic Technology Program
Assessment Data

KPI-9: Graduation rate (program completion rate):

- 75% of first technical quarter students persist to graduation (new benchmark June 03)

Related Program Outcome: O2, O4

Assessment Cycle: annually

Track/Year Graduation	Actual Results	Actions/Comments
A 99	26 enrollees; 10 completed on time, 3 completed in 3-years for a 50% graduation rate.	First-quarter attrition is higher than desirable and is related to student performances in technical courses in sciences. Students generally have time management and study habit problems. New student orientation is to be modified to increase attention to these student success variables.
B 99	31 enrollees; 8 completed on time 3 completed in 3 years and 1 completed 150% program length All within 150% benchmark for a 39% graduation rate.	This rate is one of the program's all time lowest grad rates. The quality and work ethic of students is persisting as an important variable for student success. First quarter attrition is an important contributor to poor grad rates. Develop strategies to address 1st technical qt attrition. Applied retention strategies as indicated in the dept retention plan. Officially scheduled instructor-led study sessions.
A 00	24 students enrolled with 67% persisting to graduation.	Improvement is noted for grad rate compared to previous quarters. Continue to study trends and implement current retention strategies.
B 00	36 enrollees with a decline in graduation rate back to typical values: 42%.	Investigate the potential of modularizing learning units in BIO 131 to improve course retention rates in 1st technical qt. Applied for learning challenge grant to address BIO course attrition.
A 01	27 enrollees with 44% on time graduation rate.	Continue to review strategies to address 1st qt tech curriculum attritions (See actions for course completion rates-KPI-8).
B 01	30 enrollees with 41% on time graduation rate.	Consistently well below benchmark performance on student persistence to graduation. Open-admission policy and first qt attrition are important contributors to repeated dismal results. Continue to develop strategies to address attrition issues. Open admission policy is consistent with the mission of the college.
A 02	31 enrollees with 42% on time graduation.	Faculty considering allowing Pre-RATs the opportunity to enroll in BIO series in advance of technical studies. This may help improve 1st tech qt attrition rates and improve grad rates.
B 02	39 enrollees with 49% graduation rate. Three of the entering 39 students were subsequently counseled out of the program and graduated in an alt major.	Slight improved graduation rate.. This group of students studied together more often and took advantage of open lab times more than typical groups. Continue to emphasize in all orientation sessions the need for quality study time and group study sessions.
A 03	29 entering students 52% graduated and 3 students grad pending in December. 2 students graduated in alternate major.	Grad rate continues to improve. Positive job market trends seem to have a positive impact on student persistence in program.

Radiologic Technology Program
Assessment Data

KPI-10: Job placement rate:

- JRCERT standard of 75% in 6 months

Related Program Outcome: O1, O4, O5
Assessment Cycle: annually

Track/Year	Actual Results	Actions
A-99 Graduates	93% grads known to be employed & 1 unknown	Unable to contact, left town.
B- 99 Graduates	93% grads employed; 1 grad not yet registered but working in peripheral area not seeking related employment.	No actions required.
A 00 Graduates	93% grads known to be employed; 1 unknown	Attempts were made to track the one unemployed student. No response to our phone contacts.
B 00 Graduates	100% grads employed	No actions required.
A 01	100% grads employed	All students employed in RT at the time of graduation. No actions required.
B 01	100 % grad employed	All students employed in RT job capacity prior to grad. No actions required.
A 02	100% grads employed	All students employed within weeks of graduation. No actions required.
B 02	100% grads employed	100 % students employed in RT prior to grad. No actions required.
A 03	100% grads employed	16 of 17 grads employed in RT prior to graduation with 1 grad gaining employment post graduation. No actions required.

Radiologic Technology Program
Assessment Data

KPI-11: Professional growth and development: (New KPI January 2002)

- Service Learning Experience (SLE): 80% of students perceive the experience as a positive professional development activity as indicated on follow up reflection papers.
- A team of SCC students annually competes in the quiz bowl competition.
- Student perception of growth development on core competency survey: 80% indicate growth in understanding professional and ethical responsibility.
- Employer satisfaction on core competency survey: 80% of employers indicate satisfaction at ≥3.0 level.

Related Program Outcome: O1 and O2
Assessment Cycle: annually

Track/Year	Actual Results	Actions/Comments
2002-2003	Service Learning: 100% of students indicate positive SLE as noted in reflection papers.	The number of quiz bowl attendees is gradually declining. Students are working too many hours and cannot afford to take off work. The program began scheduling formal quiz bowl practice for all 2nd yr students as an attempt to attract interest and build enthusiasm. The department funded quiz bowl team's hotel expense for 2 nights and OSRT membership fees. Some faculty and students shared rooms by gender to reduce expenses. Faculty will need to assess outcomes for 2002-03 to determine if these incentives are worthwhile.
2002 & 2003	SCC team competed 3 rounds in Quiz Bowl event	
B02 & A03	100% of students indicated growth in understanding professional and ethical responsibility	
2002-2003	83% of employer members of the advisory committee indicate satisfaction of graduate understanding of professional and ethical responsibility	

Radiologic Technology Program
Assessment Data

KPI-12: Problem solving and critical thinking: (New KPI January 2002)

- Student performance on RAT 213 Film critique test: mean score of >75%.
- Student pass rate on case studies in RAT 111, 112, 212.
- Student satisfaction on core competency survey items 6, 7 & 8: 80% of students indicate growth at level 3 or higher
- Employer satisfaction on core competency survey items 6, 7 & 8: 80% of employers indicate satisfaction at level 3 or higher

Related Program Outcome: O1 and O2
Assessment Cycle: annually

Film Critique Mean Scores on RAT 213 Test

Track/Year	Actual Results	Actions/Comments
RAT 213-W02	Mean score was 72%. 6 of 11 students scored below 75%.	Assess the number of faculty teaching FC classes. Schedule Cindy and John to do FC classes to provide for a more consistent approach to film analysis.
RAT 213-SP02	Mean score was 73%. 13 of 20 students scored below 75%.	Although the mean score was only 2 % below benchmark, 65% of students scored below benchmark of 75%. Increase use of problem-solving discussions in RAT 212 film critique. Increase mentoring for Troy in teaching FC at HC.
RAT 213-W03	Mean score was 78%. Only one student scored below 75%.	No way to assess if changes in film critique made a difference with only one grp. Need to continue to assess results in future grps to measure impact.
RAT 213-SP03	Pending	pending

Case Studies

Track/Year	Actual Results: 1st Attempt Pass Rate	Actions/Comments
Ethics Case Study- W02	RAT 111: 88% RAT 112: 100%	2 students failed on 1st attempt. There may be a problem with grading reliability across faculty. Need to discuss grading criteria and expectations with clinical faculty.
Ethics Case Study -SP02	RAT 111: 93% RAT 112: 100%	2 students failed on 1st attempt but passed on repeat attempt.
Ethics Case Study -W03	RAT 111: 100% RAT 112: 100%	Faculty discussed development of a grading rubric to help assure grading consistency.
Ethics Case Study SP03	RAT 111: 93% RAT 112: 100%	Rubric still not developed. No follow up to date. Clinical coordinator to direct this initiative.
Trauma Case Study RAT 212W-02	100%	No problems noted and no action taken

Trauma Case Study RAT 212 FA-02	100%	Faculty may not be evaluating consistently across all faculty members.
Trauma Case Study RAT 212W-03	100%	Faculty discussed development of a grading rubric to help assure grading consistency.
Pharm Case Study RAT 212W-02	100%	Faculty noted this assignment is more complex to assess. Students do not see the relevance of the assignment. Need to stress with students the critical thinking aspect of this project.
Pharm Case Study RAT 212 SP-02	100%	Pharm assignment criteria adjusted by Bev to be more clear.
Pharm Case Study RAT 212W-03	100%	Faculty discussed development of a grading rubric to help assure grading consistency.
Pharm Case Study RAT 212 SP-03	100%	Rubric still not developed. No follow up to date. Clinical coordinator to direct this initiative.

Core Competency Results

Track/Year	Actual Results: 1st Attempt Pass Rate	Actions/Comments
B-02	100% of students indicated growth in all 3 survey items although students do indicate a desire for more problem-solving activities in the curriculum.	Curriculum revisions are being proposed to include more instruction on problem-solving and quality improvement.
A-03	6 of 14 students indicated that no growth was experienced in one or more of the 3 core competencies. In each case, students indicated high level competency upon entering the program in these areas. .	Meet with IPR to determine the most efficient way to assess this KPI and related competencies. The assessment process for this KPI is very complex and time consuming.
Employer 03	Employer members of advisory committee rated items 6, 7 & 8 below benchmark (67% for all 3 items).	The committee believes that the core comp assessment form is flawed and needs to be revised to remove the neutral option. The form has been revised and will be administered again in Fall 03 to compare results