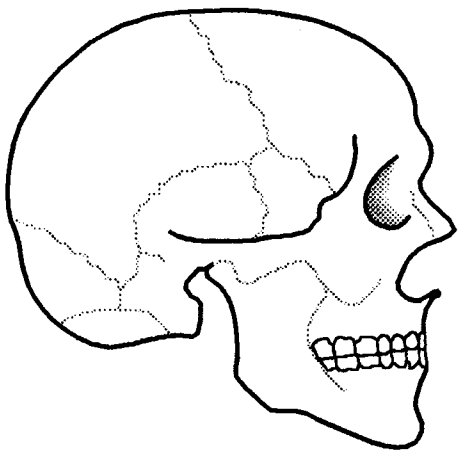
FERRIS STATE UNIVERSITY

Radiography Program

Program Review Panel Report

1998



Program Review Panel Members

Robert Holihan – Program Coordinator

Joel Rescoe – Program Faculty

Jim Mayhew (Chair) - Clinical Coordinator

Julian Easter – Department Head

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PROGRAM OVERVIEW

HISTORY

The Radiography Program at Ferris State University has had a long and successful history. From its inception in 1966 to the present, this program has served the educational needs of its students and medical community not only in western Michigan, but across the country and around the world.

The program began 32 years ago as a 33-month Associate Degree program in response to a need voiced by the medical imaging community in the state of Michigan. At the time, a considerable number of individuals who were working in the field of radiography did not meet minimum standards of education or experience. Data obtained from the American Heart Association's 1966 survey of hospital personnel revealed that there was indeed a need for a college-based program in this geographical area.

In the subsequent years, the program has grown and prospered to the point that it is now one of the largest accredited radiography programs in the country. During this time, the program has graduated thousands of qualified and highly sought after radiographers who have become the backbone of the medical imaging profession in the state. Virtually every hospital in Michigan (as well as numerous other states) presently employs Ferris graduates, and the program's reputation for producing the highest quality entry-level radiographers is widely accepted.

This reputation of program quality extends to potential students and the general public as well. In fact, in a 1997 survey of incoming students, 48% of radiography and pre-radiography students indicated that their primary reason for choosing Ferris was that it had the "best radiography program in Michigan". The program also attracts students based on the fact that it is the only University-based radiography program in the state. This gives its students the unique ability to easily extend their education to Bachelor and Master of Science degree programs.

The Radiography Program is now, and always has been, fully accredited by the Joint Review Committee on Education in Radiologic Technology whose purpose is to assess compliance with the standards of practice established by the profession. In September of this year, the program's evaluation process culminated in a very successful two-day site visit by the JRCERT. We are presently awaiting their Report of Findings.

PROGRAM STRUCTURE

The Radiography Program is a two-year (six-semester), competency-based program that terminates with an Associate of Applied Science Degree. At present, the program requires a minimum of 78 semester hours of radiography specific, laboratory, general, and clinical education for satisfactory completion. Following graduation in August, students are eligible to sit for the national ARRT (American Registry of Radiologic Technology) registry in October. Those individuals passing the national registry are considered fully certified and qualified as a registered radiologic technologist or radiographer (RTR).

The program has two distinct phases of instruction: on-campus (first year) and clinical internship (second year). In the on-campus portion of the program, the student receives radiography specific didactic and laboratory instruction. During this time, the student can also take the required support and general education courses including: Anatomy and Physiology, Biomedical Ethics, Computer Applications, Medical Vocabulary, English and a Social Awareness elective (please see accompanying check sheet for specific courses and suggested sequence). For the past two years, as a capstone for the program, the student have been invited back on campus for the last week of the second summer semester to a Registry Review. This time is used to review and reinforce previously learned knowledge, discuss the structure and methods of the registry, strengthen test-taking skills, explore job-hunting techniques and opportunities, and survey the students opinions of the strengths and weaknesses of the program.

The student's second year is spent in clinical internship at one of nearly 30 hospitals across the state of Michigan. The internship portion of the program is currently divided into two courses: Clinical Education and Clinical Practicum. The Clinical Education course has been developed to integrate with the on-campus courses to give the student the cognitive knowledge necessary to become successful in the field as well as pass the national registry. The Clinical Practicum course is developed to give the student the psychomotor and professional skills expected of an entry-level radiographer. During the year in clinical, the student must show competence (mastery) in 40 mandatory and 10 optional radiographic procedures. The student most also show competence in various areas within the radiology department including: diagnostic, fluoroscopic, portable, and surgical procedures; clerical and patient care skills; radiographic processing and equipment maintenance; and image critique. They also gain experience in a variety of imaging modalities including Computed Tomography (CT), Magnetic Resonance Imaging (MRI), mammography, angiography, and ultrasound.

It has been shown that it takes all or most of three semesters (approximately 1500 clinical hours) to learn and show true mastery of the required procedures. For example: in the 1997-98 school year, no students showed mastery in all 50 procedures before the end of the second semester and two-thirds of the students had not completed all masters before the last month of the program. It has also been shown that three semesters of clinical is needed for the student to gain experience and show proficiency in all of the numerous areas and procedures expected by the profession. This is not to say that there should not be an avenue for those students who complete all program requirements before the August graduation date to exit the Clinical Practicum portion of the program early, however, it does show that it would not be reasonable for student competency to reduce the clinical experience to two semesters.

FERRIS STATE UNIVERSITY
RADIOGRAPHY PROGRAM MISSION AND GOALS

INTRODUCTION: The Radiography Program has developed goals and measurable objectives within the guidelines of the mission and goals of the University, the College of Allied Health Sciences, and the department of Hospital Related Programs. Program objectives have been focused within the context and limited to the format previously adopted by the College of Allied Health.

PROGRAM MISSION: It is the mission of the Ferris State University Radiography Program to provide the highest quality instruction and to prepare the student to assume the professional challenges and responsibilities of an entry-level radiographer.

GOALS:	OBJECTIVES:
1. To produce competent and qualified entry-level graduates	1a. Achieve an ARRT Registry pass rate of 78% or higher for first-time examinees.
	1b. Realize a student rating (through the annual Program Evaluation) of overall program including academic, clinical portions of "Good" or "Excellent" (4.0 on a 5.0 point scale).
	1c. Maintain a graduate student rating (through the annual Graduate Survey) of the overall program of 8.0 or higher on a 10 point scale.
	1d. Annually review and revise the program entry requirements so that they meet the standards set forth by the University, the profession, and the industry.
2. Maintain or improve the quality of instruction.	2a. Develop, document, and initiate a Master Plan of Education by the end of the Spring Semester, 1998.
	2b. Maintain JRCERT accreditation.
	2c. Design and adopt on-going plans for program evaluation, curriculum review, and instructional evaluation with measurable objectives and outcomes.
	2d. Attain an annual program completion rate of 80% or higher.
	2e. Solicit information and gather data for program assessment and improvement through annual meeting with the Advisory Committee and the Clinical Instructors.

3.	Meet the employment needs of graduates and employers.	3a.	Attain an employer survey rating that indicates that the program meets or exceeds standards (3.0 on a 4.0 scale) on all criteria.
		3b.	Annually update graduate and alumni databases.
		3c.	Provide documentation that 80% of those graduates seeking employment are employed within six months of graduation.
4.	Promote a flexible and adaptive curriculum.	4a.	Incorporate clinical sites more thoroughly into the educational cooperative delivery system.
		4b.	Attain a rating of "good" or "Excellent" (4.0 on a 5.0 scale) for all curriculum areas on the annual Adjunct Clinical Instructor survey.
		4c.	Develop and integrate a plan to incorporate distance learning into the clinical portion of the program.
5.	Provide an environment that responds to the need for continuing education of faculty, clinical staff, graduates and registered technologists.	5a.	Survey the educational needs of faculty, alumni, and graduate radiographers annually.
		5b.	Continue and promote an equitable plan for faculty continuing education which contains provisions so that: -- the radiography faculty can attend at least one professional and one educational activity annually. -- the program faculty can complete his or her graduate degree in a timely fashion. -- the faculty may obtain training in a pararadiographic specialty.

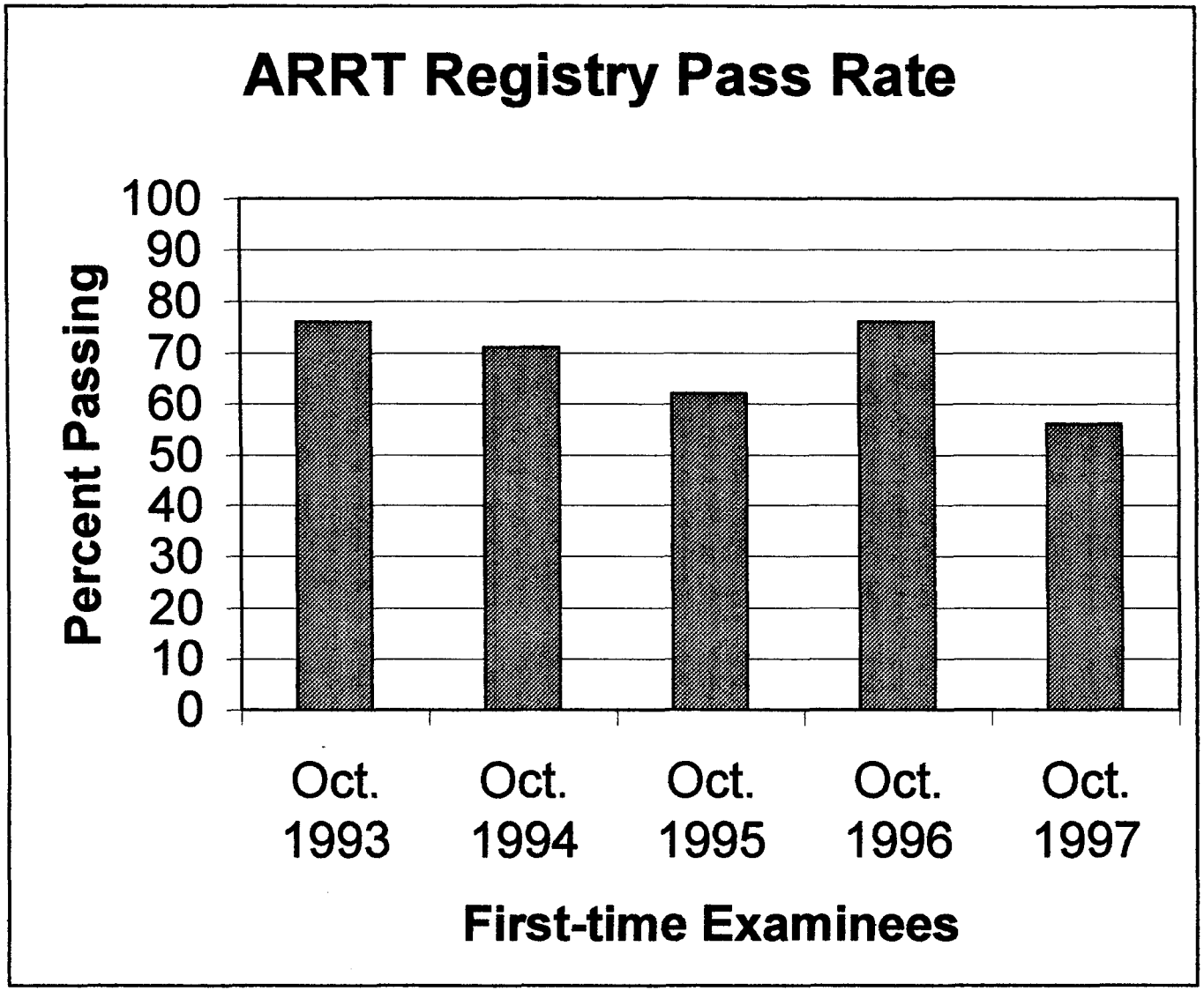
ARRT REGISTRY SCORES

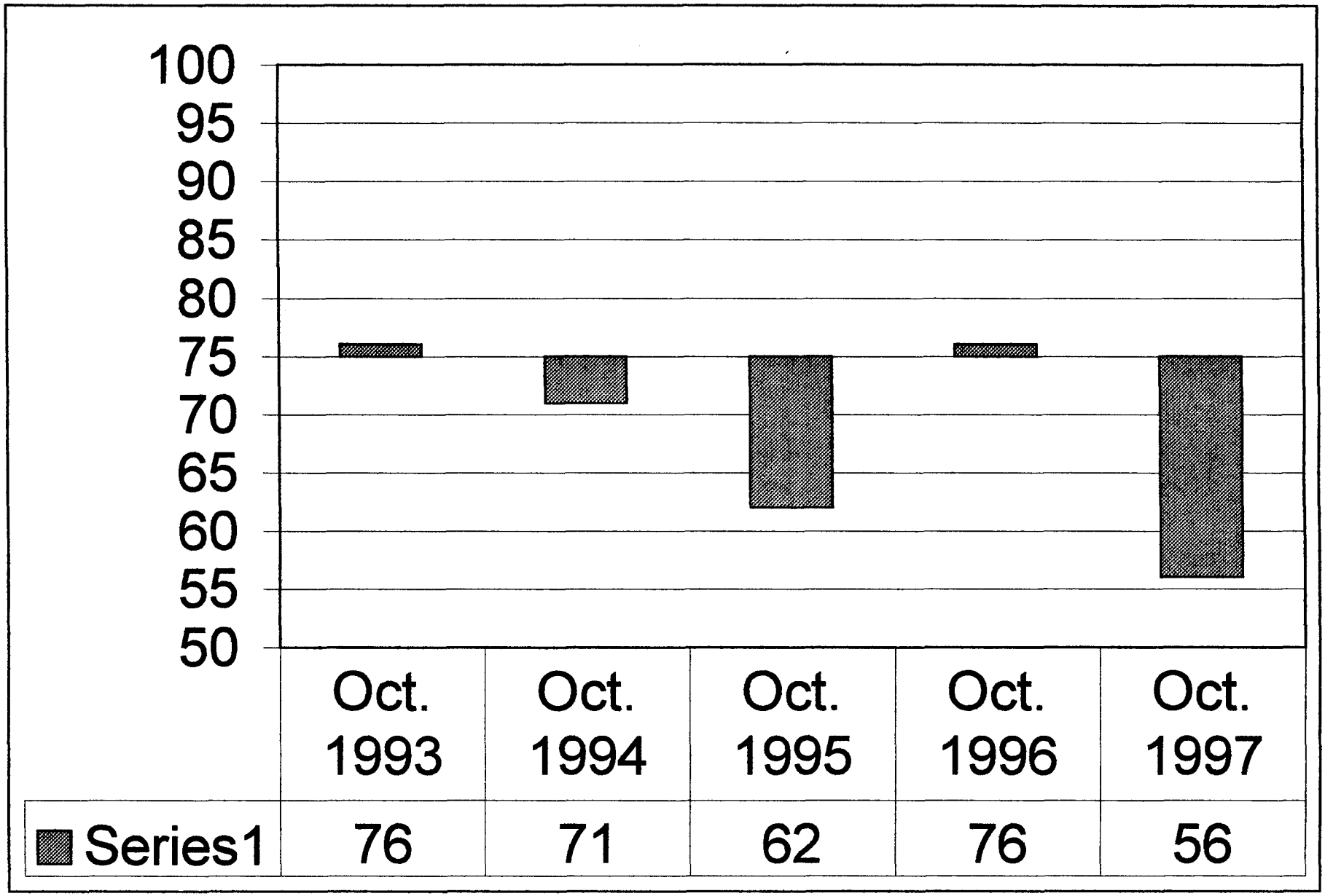
Following successful completion of the Radiography Program, students are eligible to take the national registry test administered by the American Registry of Radiologic Technology. This registry is considered the benchmark of the profession and most states have licensure laws that identify the ARRT registry as a minimum entry-level requirement. Even though Michigan has no such licensure law at present, most hospital follow the recommendations set forth by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) to only hire registered technologists. Therefore, the program's ability to give its students the knowledge and skills necessary to pass the national registry is paramount to the success of the program. The following is information about graduate student performance for the past five years:

Date of Registry	Number of Examinees*	Percent Passing	National Pass Rate	FSU Average Score	National Average Score
Oct. 1993	49	76%	86%	78	82.47
Oct. 1994	53	71%	87%	79	83.20
Oct. 1995	53	62%	90%	79	84.38
Oct. 1996	45	76%	90%	81	84.19
Oct. 1997	48	56%	90%	77	83.74

* Please note that these statistics are for first-time examinees only. Data from students taking subsequent tests is usually not included in the statistics released by the ARRT.

As determined by the JRCERT, a benchmark of a 75% pass rate has been set for all accredited radiography programs. As seen on the accompanying charts, the program has only met or exceeded that standard twice in the last two years and then only by one percentage point. Additionally, the program has set its own goal of a 78% pass rate for first-time examinees. This projected outcome has not been met in the past five years. Obviously this trend is of extreme concern for the faculty and administration of the program. We are currently engaged in an in-depth programmatic evaluation that includes using the information and insight gained through the JRCERT Self Study and PRP processes as well as the upcoming curriculum and program structure review and redesign. It was also these pass rates which prompted the development of the Registry Review seminar described above.


ARRT Registry Pass Rate
Percent Passing
100
90
80
70
60
50
40
30
20
10
0
Oct. 1993
Oct. 1994
Oct. 1995
Oct. 1996
Oct. 1997
First-time Examinees


100
95
90
85
80
75
70
65
60
55
50
Oct. 1993
Oct. 1994
Oct. 1995
Oct. 1996
Oct. 1997
Series1
76
71
62
76
56

ARRT SUMMARY OF MEAN SCORES BY SECTION

	10/93	10/94	10/95	10/96	3/97*	10/97	Average
Radiation Protection	8.0	8.0	7.8	8.0	8.5	7.5	7.97
Equipment Operation and Maintenance	7.5	8.0	7.2	7.5	7.6	6.9	7.45
Image Production and Evaluation	8.0	8.0	7.9	8.0	8.8	7.5	8.03
Radiographic Procedures	7.5	8.0	7.7	8.0	8.3	7.7	7.87
Patient Care	8.0	8.5	8.6	8.6	9.0	8.3	8.5
Average Mean Score	78	79	79	81	85	77	

* 4 Examinees

FERRIS STATE UNIVERSITY RADIOGRAPHY PROGRAM
Program Evaluation

Purpose:
To better enable Ferris State University radiography students to be successful in the dynamic and highly competitive field of radiography, it is the responsibility of the radiography program to perform ongoing evaluation and revision. The purpose of this policy is to outline the procedures by which the entire program's effectiveness will periodically be evaluated including its; policies, instructors, curriculum, and clinical education. This process is to include both internal and external indicators as to the strengths and weaknesses of the program. These indicators will be reviewed by program officials on a yearly basis and programmatic changes will be recommended to the advisory committee. Specific comments, observations, and recommendations will be documented and kept in the program's files. Actions taken as response to recommendations will be documented and tracked, and their effectiveness analyzed.

PROGRAM EVALUATION TOOL	DATE OF MEASUREMENT
Collection and analysis of retention and attrition rates	Annually – September
Assembling and analysis of program completion rates and program length data	Annually – October
Compilation and analysis of ARRT results	Annually – November
Program evaluation process review and revision	Annually – January
Graduate Survey distribution, collection and analysis	Annually – February (6 months post graduation)
Employer Survey distribution, collection, and analysis	Annually – February
Job (Task) Analysis	Every 5 years – March
Faculty Resource and Program Evaluation Survey distribution, collection, and analysis	Annually – April
Advisory Committee Survey distribution, collection, and analysis	Annually – May
Alumni Survey distribution, collection, and analysis	Annually – June (2 years post graduation)
ACI Survey distribution, collection, and analysis	Annually – July
First-year Survey and Resource Assessment	Annually – August (end of 1st summer semester)
Internship Survey and Resource Assessment	Annually – August (end of 2nd summer semester)
Program Evaluation	Annually – August (end of registry review)
Data Analysis Session	Annually – September
Development of Unit Action Plan	Annually – September

STUDENT EVALUATION OF PROGRAM

Method

During the Registry Review seminar at the end of the last semester, the graduating students are asked to fill out the Program Evaluation questionnaire. In 1997, 33 out of 51 graduating students (65%) attended the Registry Review and each completed a survey. In 1998, 36 out of 48 graduating students (75%) attended the review and completed the form. On the following pages, please find the data collected from these surveys.

Analysis

In analyzing the data from these surveys, the faculty looked closely at those criteria in which the students rated below Good (4.00) or had a marked decrease in rating from 1997 to 1998. The following are a representation of the impressions and conclusions drawn by the faculty:

1) The library is not perceived to presently meet the needs of the radiography students. This could include the lack of currency, diversity, and availability of library resources. It could also reflect the program faculty's need to emphasize the use and usefulness of the library.
2) Student advising and counseling was identified as a weakness of the program. It was the faculty's perception that there needed to be more consistency of advisement and a stronger connection with the students. It was also felt, however, that the total number of advisees designated to each faculty member was not conducive to giving the students the time and communication necessary.
3) The student's perception of the efficacy of the academic portion of the program decreased from 1997 to 1998.
4) There appears to be a need to strengthen the communication between the clinical faculty (Adjunct Clinical Instructors and hospital staff) and the student.
5) The students indicated that they were not given enough time in areas outside diagnostic radiography (i.e. CT, MRI, ultrasound, mammography, etc.).
6) It is apparent that the effectiveness and enforcement of program policies are not good as they could be, however, both indicators show an upward trend from 1997 to 1998.
7) It is indicated that the students do not feel that the leadership of the college administration is effective, but this score has also risen from 1997 to 1998.

Recommendations and Actions

1) The program faculty needs to make better use of the library by creating assignments that motivate the student to utilize the available resources (including the internet). The faculty also needs to promote this resource to the students and become more familiar with it themselves. This will especially be true when the FLITE building is completed.
2) The advisor / advisee ratios are now being scrutinized by department administration. Changes in these ratios may include a redistribution of advisees.
3) The academic portion of the program (specifically the curriculum and program structure) will go through an intensive review and revision process in the next six months. This is spurred on not only by this and other data, but also by the college's adoption of a core curriculum. Within the next year, the program's curriculum must be altered dramatically.
4) Evaluations of the Clinical Instructors and clinical sites by the Clinical Coordinator and students are being developed. These will indicate deficiencies in communication that need to be addressed.
5) Policies concerning the length and availability of outside rotations are being reviewed and updated to make sure the interns are receiving the educational opportunities they need.
6) A Student Handbook has been developed to advertise and strengthen program policies.

RAW DATA FROM 1997 PROGRAM EVALUATION
n = 33

Scale:
5 = Excellent 4 = Good 3 = Fair 2 = Poor 1 = Unacceptable

DIDACTIC (CLASSROOM) PORTION

1.	Amount and practicality of required courses	3.89
2.	Availability of required courses	4.08
3.	Availability of instructors outside of class time	4.30
4.	Organization of classes	4.16
5.	Appropriateness of textbooks	4.16
6.	Appropriateness of tests and quizzes	4.16
7.	Use of audiovisual aids	4.22
8.	Instructor feedback	4.43
9.	Quality and quantity of educational resources	4.22
10.	Amount and usefulness of library resources	3.69
11.	Appropriateness and effectiveness of student advising and counseling	3.97
12.	Overall effectiveness of academic portion of the program	4.16

CLINICAL PORTION

13.	Availability and professional ability of clinical coordinator	4.13
14.	Availability and professional ability of Adjunct Clinical Instructor(s)	4.38
15.	Organization of clinical program	4.03
16.	Communication between clinical faculty and student	3.89
17.	Helpfulness and ability of staff radiographers	4.08
18.	Amount of time spent in clinical	4.08
19.	Use of rotations outside of diagnostic radiography	3.81
20.	Length of rotations or room assignments	3.89
21.	Variety of clinical experiences	4.19
22.	Overall effectiveness of clinical program	4.27

OVERALL PROGRAM

23.	Effectiveness of program policies	3.57
24.	Enforcement of program policies	3.49
25.	Program's willingness to listen and incorporate student suggestions	4.05
26.	Overall effectiveness of program	4.00
27.	Effectiveness and leadership of college administration	3.59

SPECIFIC COMMENTS REGARDING PROGRAM FACULTY AND STAFF

- Staff was really helpful and understanding.

- Mr. Rescoe is very knowledgeable and enjoys teaching. He was very helpful and very much an asset to this program.

- Lack of an on site instructor at NOMC was my only complaint.

- I think I learned the most during Fall & Winter. Summer was a waste of my time.

- Could of come to clinical sites a bit more.

- Summer '96 needed more organization.

- Ricky was an excellent ACI.

- Joel & Tara should be rewarded. I would not have even gotten thru first semester if not for them. I received the best education of my life from these 2!

- Mr. Rescoe is excellent!

- I felt there should have been more visits by faculty programmer in charge internship.

- Staff and faculty have been very helpful through all my experience at Ferris.

- Mr. Mayhew was a wonderful addition to FSU Allied Health program!

- They were willing to take time.

- Felt I learned the most from Mr. Rescoe & especially Kay Williams. I learned more from her in just 2 hrs. week than the whole 2 yrs combined.

- Our instructors at Butterworth were very helpful, and I feel they have taught us a lot to prepare for the boards. Congrats to Jim Mayhew. Made us actually feel like we were still FSU students. Thanks for your willingness to help & listen to our problems and concerns. Wish you were a little earlier, but next years class have a bonus on us.

- Our summer semester I felt was a waste of time, due to out instructor shortening our classes regularly.

- I felt that all of the instructors are very willing to help the students who ask of it, and I've never felt like I couldn't ask for help.

- Ferris program was excellent, preparing us not only for 1 yr. internship - but the national registry as well! Staff was great!

- ACI's or the one at my internship site needs to be more stern so students don't take advantage.

- Mr. Rescoe is an excellent instructor - very dedicated and always available! Would like to see more instructors like him!

- Some faculty were very good and I guess made up for the ones that weren't good.

- Mr. Rescoe is a very important part of this program. He's an excellent teacher & should be recognized.

- Appreciate Mr. Mayhew efforts & enthusiasm.

- Program getting better with Jim. Joel is still great.

SPECIFIC COMMENTS REGARDING THE PROGRAM IN GENERAL

- Pretty good overall.

- Labs were too big. Rooms need to be upgraded.

- Start labs with more useful exams such as chest, abd, etc. instead of extremities.

- Mr. Mayhew is a great addition to FSU!

- I enjoyed the program. Clinical seems very long and demanding.

- I feel that a few people passed this program that shouldn't have - because of failing grades and very poor attendance. It is unfair to the rest of us that are always at clinical and work hard on grades & attendance. They will give Ferris & their clinical site a BAD name to their future employers.

- Good program - just iron out the kinks!

- I believe the time off on clinical site should be shorter with less days off for Christmas and all the other breaks. Shorten them up some, they are too long.

- It was a good experience.

- Instead of BIO 109, I think 205 would be better in preparing us for other classes as well as clinical.

- Excellent teaching staff!

- Aug - Aug (clinical) is a long time. I feel Aug - May is plenty of time & this would give us time to find a job before all the other schools!

- My overall experience with my clinical was very good and I enjoyed my ACI & staff, and I learned a lot.

- Seems too "money" oriented. Program accepts too many students with job market being flooded. During clinicals - no help from FSU until Mr. Mayhew took over. Rules are bent too easily to slide students thru clinicals.

- Needs to have more time in hospital.

- Loved registry review.

- Be a 3rd (year?) program. More focus for a yr. on physics and equipment.

HOW WOULD YOU IMPROVE THE PROGRAM?

- Clinical time when in 1st year. All clinical sites should be at the same place with teaching and giving tests.

- Different - specified anatomy class for radiography.

- Place interns at sites closer to home. More information and learning during summer semester before internship to be better prepared.

- Less students 1 yr. More consistent guidelines for student performance in clinicals. More time on positioning skills.

- Nothing.

- Instead of forcing students to take "scheduled" breaks (holidays, etc...) allow to use that time at their discretion. Sick days etc...

- Wasn't happy with clinical site's staff.

- Internship ACI didn't take an active role to allow me to "fit in & feel comfortable" at the beginning, didn't have class time (had 3x maybe!!)

- I would make the clinical students feel more in touch with Ferris. I felt for quite a long time that we were just shoved out the door and forgotten about unless we forgot to pay our fees. After second semester I no longer felt that way.

- Do not pass people that do not deserve it. There were many people that I knew that did not have the required grades & Ferris passed them. Also have a stricter attendance policy.

- A more strict policy regarding attendance while on clinical. When a student doesn't adhere to the policy they should be punished accordingly (make up time).

- Improve communications between FSU & students during internship.

- Be more willing to work around people's schedules.

- Having FSU more included during 2nd year (internship).

- Less break time, more visits at clinical sites by the coordinator.

- Better lab work that coordinates with what we are going to be responsible (for) in the hosp setting. More of that during the summer session.

- Better communication during clinicals.

- Find effective sites who actually care about the students!!!

- Have students do their evaluations in lab on people they do not know. Maybe in summer semester have interns come down to be pt.

- More communication!

- More worksheets sent from Ferris or a instructor on site.

- Fewer 8 am classes. Have a list of all hospitals (?) in summer semester. Have another review closer to registry.

- Smaller class - market is saturated. It seems FSU only cares about $. Why not CT, MRI, Ultrasound, radiation therapy instead of bigger classes?

- Have better communication between Ferris when your on internship.

- I think students should put time in a hospital to see what it's really like. Volunteer for a couple of weeks.

- Have students evaluate the tech's at clinical internship.

- Pay us!!

DO YOU FEEL THAT YOUR EDUCATION IN THIS PROGRAM HAS SUCCESSFULLY PREPARED YOU TO ENTER THE PROFESSION OF RADIOGRAPHY?

- Yes. Thanks to our instructors.

- Yes (17 responses)

- ???

- Somewhat.

- Very much! Thank you Kay, Jeff, Joel & Tara! (& Jim)!

- On campus yes. At clinical site, what educational help.

- I hope so!

- Yes, I believe at entry level radiographer.

- I feel that this will give me a good start as an entry level radiographer but I have a lot more to learn when I get a job.

- Yes definitely - due to my clinical site!

- Somewhat.

- Yes - thanks to clinical site.

- I feel that I could have been better prepared. There are a lot of exams that I have never seen or heard of.

- Kind of.

OTHER COMMENTS OR SUGGESTIONS

- More visits to clinical site.

- I don't think anyone takes into consideration that some people have no choice but to work. They can't just give up their job to intern or they wouldn't be there in the first place.

- I think that students should be watched - their attendance. We had a lot of people making up hours at the end and I don't feel that is fair to those of us who didn't miss days.

- Mr. Mayhew doing good job in organizing program with new input.

- The rules & policies of the program were clearly spelled out for us. A few students didn't follow these. Their attendance was poor & they had failing grades. How did they make it through?

RAW DATA FROM 1998 PROGRAM EVALUATION

N = 36

Scale:

5 = Excellent 4 = Good 3 = Fair 2 = Poor 1 = Unacceptable

DIDACTIC (CLASSROOM) PORTION

1.	Amount and practicality of required courses	4.14
2.	Availability of required courses	4.08
3.	Availability of instructors outside of class time	4.22
4.	Organization of classes	4.06
5.	Appropriateness of textbooks	4.08
6.	Appropriateness of tests and quizzes	4.22
7.	Use of audiovisual aids	4.33
8.	Instructor feedback	4.14
9.	Quality and quantity of educational resources	4.08
10.	Amount and usefulness of library resources	3.77
11.	Appropriateness and effectiveness of student advising and counseling	3.81
12.	Overall effectiveness of academic portion of the program	3.94

CLINICAL PORTION

13.	Availability and professional ability of clinical coordinator	4.25
14.	Availability and professional ability of Adjunct Clinical Instructor(s)	4.33
15.	Organization of clinical program	4.11
16.	Communication between clinical faculty and student	3.86
17.	Helpfulness and ability of staff radiographers	4.00
18.	Amount of time spent in clinical	3.66
19.	Use of rotations outside of diagnostic radiography	3.58
20.	Length of rotations or room assignments	4.08
21.	Variety of clinical experiences	4.25
22.	Overall effectiveness of clinical program	4.29

OVERALL PROGRAM

23.	Effectiveness of program policies	3.66
24.	Enforcement of program policies	3.74
25.	Program's willingness to listen and incorporate student suggestions	3.94
26.	Overall effectiveness of program	4.03
27.	Effectiveness and leadership of college administration	3.86

SPECIFIC COMMENTS REGARDING PROGRAM FACULTY AND STAFF

- Great faculty and staff!

- Very helpful and understanding

- I felt that it was hard to get a hold of the clinical coordinator.

- Some have just been here too long and don't care about teaching

- Not all instructors were good. Nice people just not teachers – physics – didn't learn.

- I think rotating through 2nd and 3rd is alright for 1 semester but all year is not good – especially midnight shift. It's a good learning experience but it should only be 1 week total all year.

- I think interning at Butterworth helped prepare me well for the Registry.

- One particular instructor was very unorganized. Didn't learn much from him. It was a waste of time. The other instructor cared and made the program work.

- Mr. Rescoe is great – other staff members need to take a look at their style of teaching – focus more on the students.

- Communication could be better between the ACI and clinical coordinator.

- Jim Mayhew has been a great benefit to the program.

- This was excellent – when and if I called and no one was there, my call would be returned in a timely manner.

- Mr. Rescoe, Mr. Holihan, & Mr. Mayhew sincerely care about the quality of education that the students receive. Excellent instructors. I give them a 5.

- The faculty and staff here at Ferris are <u>great</u>!

- Mr. Mayhew is an excellent clinical coordinator.

- Clinical aspect improved since Mr. Mayhew came to FSU.

- They have been very helpful throughout my years here.

- I feel that Ferris has gone above and beyond to do what they could to get me through the good and bad times!! It shows how you genuinely care about us! However I feel that an ACI became too involved in certain student's personal lives and used their authority to manipulate students almost to the point of unprofessionalism with not only the students but coworkers also. When a student feels that they have to watch their back and tiptoe around an ACI to get through a yr without conflict of any kind because of their "sneaky" ways; it is not fair to undergo/witness these tactics. Especially when it appears that naïve, shy people of the female gender are singled out.

- I liked the staff and faculty. I loved some of the people I worked with at clinicals. Some were psyco [sic].

- ACI's overinvolvement in personal life. I am totally happy w/ this program ... the organization is outstanding and help is always just a phone call away. During the program, I felt it was tough but now that its over I am totally impressed by the way you have prepared us. Thanx.

- Mercy's ACI – to[sic] involved in students lives outside of clinical site – uses his power why (way?) beyond necessary points, to his benefit – almost blackmailing students.

- Staff techs should not be lazy and expect students to do <u>all</u> the work. (It teaches us to be lazy!)

- All clinical sites should test also on the side to improve skills.

- I liked my instructors and the way they taught.

SPECIFIC COMMENTS REGARDING THE PROGRAM IN GENERAL

- I don't feel that I will pass the registry test.

- Overall pretty good, but we need more learning on physics, etc.

- One personal day per semester is really crazy especially when you have little kids. Its not practical.

- Should be allowed at least two personal days per semester. One is NOT enough especially those of us who work 2 or 3 jobs to support ourselves and our families.

- Clinical is too long.

- Should be more oportunity [sic] in individual learning.

- I think the program instructors really try to help us out with our questions.

- Could be improved.

- internship should not be 40 hrs – no pay. I learned more on internship than FSU. Internship should be incorporated w/ on campus.

- Possible consideration of integrating clinical & classroom together (in the 2 yr period)

- Program is pretty good overall.

- Sometimes we never got messages or papers that we needed.

- The program was well organized, however I feel I could have had more info on physics.

- In general, I thought the program was a fast learning experience.

- Text books need to be applied better ... many/much of the information in our paperback book are in the other major books ... waste of money.

- Need to teach student more about leadership, and communication, teamwork.

- Good education.

- More lienientcy [sic] if you are hired as relief on making up student hrs/sick days. I do not feel that some teachers should be able to teach because of ??seniority?? They may know a lot but teaching it does not benefit the student.

- One personal day is pretty skimpy per semester, 2 would be adequate.

- Great, learned a lot & enjoyed myself. Overall clinical site was OK – however Ricky gave us/me – huge holes in the road. Not impressed with him.

- Overall a good program.

- Need internship site with more trauma. Not the small hospitals. Need to send at least 2 students to each site.

- Not happy with the clinical part at all.

HOW WOULD YOU IMPROVE THE PROGRAM?

- I would prepare the students for the registry exam better.

- Get rid of weak link.

- Incorporate clinical in the 1st year as well as class time in the 2nd year. Not one year for each. It would be easier to do hands on as you learn it from the classroom – apply it right away & it would be easier to learn it.

- More physics. Do physics works thru the entire 1st year.

- Have a scheduled classroom time mandatory for clinical sites.

- It would be nice to incorporate clinical and classroom at the same time.

- Have clinical and RT classes in both semesters.

- Maybe divide semesters up between classes and clinical although this would be challenging.

- Change of an instructor. Same clinical coordinator all year.

- More QA & physics.

- More physics – more labs.

- Have you on campas [sic] for a while, then hospital, then back on campus, hospital, etc. Use the back and forth method.

- Reevaluate the required classes – medical ethics – not necessary unless you apply it by having a radiography instructor teaching the class designed for radiogr4aphers.

- Be sure each site has adequate availability of exams.

- Find ways to better prepare students for internship. Students feel completely lost when they start – the techs can't believe what little the students know.

- By providing more resources to the clinical site such as computer and more.

- I would encourage more manual techniques, I used phototiming so much that I'm not completely confident in myself setting manual techniques.

- If a student is hired as a relief tech they should not be required to make up all of the student hours. (Especially when you arrive to the hospital as a student & pulled to work to cover other shifts)

- Do not send others to Gerber.

- Let us rotate through other modalities like ultrasound, MRI, CT, specials. Maybe 4 days a piece.

- Mr. Holihan needs to teach better – (or get a different teacher). Hired work time counts as Intern hours. I am happy with this program. Organization is great and clinical time spent is adequate. Rescoe & Mayhew take a lot of their own time to make sure their students are learning and enjoying themselves. Thanks for the past 2 years!!

- Clinical and school coordination through out 2 yrs.

- I think it would be a good idea to have students move to other sites and experience different size hospitals. Have a majority of hospital based programs.

- Better ACI's.

- Don't send anyone to Gerber.

DO YOU FEEL THAT YOUR EDUCATION IN THIS PROGRAM HAS SUCCESSFULLY PREPARED YOU TO ENTER THE PROFESSION OF RADIOGRAPHY?

- Yes (19 responses)

- Except for radiation physics.

- Yes – but not to pass the registry.

- Yes – surgery area a little weak.

- Not surgery, recovery hips, otherwise YES!

- Yes, despite personality conflicts w/ staff. I learned quite a bit about professionalism.

- I hope so.

- Mostly the clinical part taught me everything.

- Not completely.

- Sure.

- Yes – I am ready, willing, & able to work.

- Yes – you betcha.

- Physics and special procedures need to be covered more.

- The clinical portion prepared me, the didactic portion did not – the labs were unrealistic.

- Mostly.

OTHER COMMENTS OR SUGGESTIONS

- I know how not to treat people.

- Pick your ACI's better.

- I especially enjoyed Mr. Mayhew and Mr. Rescoe. They have taught me so much. Not just the bookwork, pt. skills and positioning ... but professionalism & attitude. It was great to see their sincerity when it comes to the students and this program. Thank you!!

- When student gets employed as a tech and gets $ for it, I feel you shouldn't leave to work separate student hrs.

- Arrange something different about sick days off. Hired students as relief should have to make up interns hours – when worked – they are doing the same thing. Enjoyed Mayhew and Rescoe coming to clinical site – helps a lot – great ideas. Coming to FSU & helping in labs is nice.

- The program has been a great success for me.

- Free at last, Free at last, Thank God I'm Free at last.

GRADUATE EVALUATION OF PROGRAM

Method

Graduate Survey forms are sent out six months after graduation (February of each year). In the 1997 survey (those students graduating in August 1996), 21 of 51 graduates responded for a return rate of 41%. In the survey collected in 1998 (1997 grads), 17 of 48 graduates responded for a 35% response rate.

Analysis

The faculty made the following conclusions from this data:

1) In 1997, 90% of those graduates surveyed indicated that they are employed as a radiographer. Due to a survey tool omission, it is not known why the remaining 10% (2 students) were not employed. We do not know whether they were unable to find a job or if they chose not to work (continued their education, etc.). This survey error was corrected in the 1998 survey in which it was indicated that 100% of the respondents were either employed as a radiographer or continuing their education.
2) For each of the last two years the program has exceeded the professional standard of 75% employment of graduates within six months of graduation. It has also exceeded the program's own goal of an 80% employment rate. This shows that the program's graduates (at least those responding) are able to find and obtain gainful employment.
3) In the past two years, 100% of our graduates rated themselves as adequately or very prepared clinically for a job as an entry-level radiographer. This indicates that the clinical portion of the program is properly preparing the students.
4) A relatively large number of graduates have indicated that they are pursuing post-associate degree education. This shows that the students have identified the need to continue their education and further their professional training and skills.
5) 88% of all graduates rate the overall quality and effectiveness of the program as good or excellent.
6) In the past two years, over 75% of the graduates found employment with a yearly salary between $20,000 and $30,000.
7) Even though the data may not show it, many graduates indicated that jobs (especially full-time, full-benefit jobs) were hard to find.

Recommendations / Actions

1) Many students indicated that one of the greatest weaknesses of the program was a lack of a radiation physics / technique class. The faculty sees the need for comprehensive course content in this area.
2) The skills, which give the students the ability to find a job in an overcrowded market, must be encouraged and intensified.
3) A need for the strengthening of the program's and the University's job placement service was identified.

FACULTY EVALUATION OF PROGRAM

EMPLOYER EVALUATION OF PROGRAM

ADVISORY COMMITTEE EVALUATION OF PROGRAM

Raw data from 1997 Graduate Survey

Number of responses: 21

1. **Year of graduation**: 1996

2. **Are you presently employed as a radiographer?**

Yes: 19 (90%)	No: 2 (10%)
Full-time: 14 (74% of employed) (67% of all respondants)	Part time: 5 (26% of employed) (24% of all respondants)

3. **Approximate yearly salary:**

below $15,000:	4 (21%) (pt)	$25,000 to 30,000:	3 (16%)
$15,000 to 20,000:	0	above $30,000:	0
$20,000 to 25,000:	12 (63%)		

4. **Did you have any problems finding a job?**

Yes: 5 (24%) No: 15 (71%) No answer: 1 (5%)

Do you have any suggestions of things that the program could do to aid students in their job search?
- "Never to early to send out those resumes. Market is saturated with technologists."
- "Job competition is high! Self-motivation is a key."
- "Make a list available of addresses of hospitals and clinics in and around the state."
- "Make them visit a hosp. before they even begin rad. classes."
- "Apply everywhere possible."
- "Your placement office does not assist the students in finding work. They do not even have any listings nor do they intend to offer assistance to radiography student[s] in their search."
- "Stop pumping out 60 students a yr. for your profit!!"
- "Supply students w/ subscription to Advance."
- "Not presently."
- "Provide a bulletin of current job opening across the state"
- "Learn it all during your internship, because you're on your own after that! Know your stuff!!
- "Don't tell students that there are jobs waiting for them. I lucked out and stumbled upon my job by accident. Hospitals aren't hiring and clinics are few and far between."

5. **Current employer(s)**

6. **If you are not currently employed as a radiographer, what field are you in and why did you choose it?**
- "I'm going back to school to pursue another career."
- "CT and MRI."
- "I'm continuing on to work in another area of Radiology."
- "Also employed as a mammogram tech."

7. **Do you feel that you were adequately prepared clinically for a job as an entry-level radiographer?**

Yes: 21 (100%) No: 0 (0%)

If not, what do you suggest?
- "Nothing, I interned at Butterworth and was exposed to a great number of positive experiences. Kay Williams is a great teacher and one of the greatest people I have ever met.
- "I learned more during my internship than in school. Our schooling should gear more toward positioning.
- "More patient care education, fluoro, and more simulations of difficult patients. Phototiming also."
- "But I feel that Ferris needs to keep in touch with the clinical sites better.
- "As much as FSU could do. You actually learn about 85% of everything during internship. FSU is only an introduction, an appetizer so to speak."

8. **Do you feel that your didactic (classroom) instruction adequately prepared you for passing the ARRT registry?**

Yes: 11 (52%) No: 5 (24%) Yes & No: 4 (19%) No answer: 1 (5%)

If not, what areas could we improve?
- "Physics! My internship taught me the most. Students need actual hands on experience."
- "I feel I was prepared but it would be helpful if a Registry Review was given where all interns could get together again and review subject material before the Registry."
- "Physics and processor!!!"
- "I wish my guidance/academic advisor would've pushed the option of getting a Health Systems Management degree on top."
- "Students should be required to observe prior to enrollment. Should be intern, classroom, intern, classroom etc. Thank God my ACI instructed us!"
- "In school yes but at my clinical site there basically was no classroom time and I feel it would be a lot more beneficial if class time were involved."
- "Transformer & Processor info."
- "Just to keep focus on x-ray, please to keep away from political correctness and other useless crap."
- "We had no physics in school. That was one thing I would have failed w/o outside help."
- "The boards had a lot of physics which was not taught to us."
- "The technical aspect. The radiography physics part. The labs also need to be more true to life."
- "Physics."
- "Understanding processing and screens."

9. **What subject areas do you feel were the most beneficial to you as a radiographer?**
- "Physics, Anatomy & Positioning."
- "Anatomy was the most beneficial. Positioning lab was also important."
- "Anatomy & Pt Care skills."
- "Positioning and Anatomy. Pt. Care. Physics of Radiation productions & Protection."
- "Positioning."
- "Anatomy & Positioning. Principles of Radiography."
- "Positioning, labs on technical factors."
- "Labs with Tara & Joel Rescoe! Also medical terminology."
- "The labs where technique and positioning was taught as well as pathology."
- "Radiograph technique. Summer - fluoro."
- "Anatomy & Positioning."
- "Don't really need anymore classes added."
- "Positioning, kV & mAs adjustments helped a lot."
- "Positioning / anatomy."
- "Positioning."
- "Internship at Butterworth."
- "Anatomy - Positioning."
- "Med. Terminology, Anatomy."
- "Anatomy & Positioning."

10. **What subject areas were least beneficial to you as a radiographer?**
- " The technical asspect [sic] as how the machine was designed."
- "None."
- "All are important areas of radiography."
- "The x-ray class were least useful. None of that made sense w/o ever being in the x-ray department."
- "Don't have enough room to comment."
- "Patient protection, etc. Most of that we learn in internship. Also the 1st semester of lab was worthless."
- "Structure and all of the components of the processor -- thats what the service persons are for."
- "Computer part & Physics class."
- "Humanities."
- "They are all beneficial."
- "Circuitry & Processor Q&A."

11. **Now that you are in the work force, how would you rate the overall radiography program at Ferris State (on a scale of 1 to 10 with 10 being the highest)?**

10:	2 (9%)	7/8:	2 (9%)
9:	2 (9%)	7:	5 (24%)
8.5:	1 (5%)	6:	1 (5%)
8:	7 (33%)	Don't know:	1 (5%)

Average: 7.925

12. **Are there any subject areas that you feel should be added to the curriculum?**

- "Physics and the mechanics of x-ray productions should be strengthened."
- "Looking at films & figure out problems on film. Make technique charts."
- "Better physics courses."
- "Dealing with patients, support staff & doctors attitudes."
- "How about barium enemas 101?"
- "No."
- "How to interview for a position & politics in the hospital environment."
- "Touch on physics."
- "See # 8."
- "There are already enough classes."
- "Physics."
- "See question #7."
- "More patient care."
- "Physics and maybe a math, and a higher med. terminology course."

13. **Are you currently, or in the near future, planning to continue your education?**

Yes: 14 (67%) No: 5 (24%) No answer: 2 (9%)

If so, in what field?

- "Bac / Mast in Health Systems."
- "Secondary education."
- "MRI - Cat Scan."
- "Mammography & Ultrasound. ?Allied Health Education."
- "Haven't decided."
- "Currently enrolled in FSU off-campus (Grand Rapids HCSA program)."
- "A speciality [sic] in radiography."
- "Unsure, but possibly Echo, Specials, or CT - MRI."
- "Radiation therapy."
- "Mammography."
- "Mammo, C.T. - I am presently training in bone density."
- "Radiation Therapy."
- "I wish to add language."
- "Health Care Systems Administration."

14. **Are you considering taking one or more of the ARRT advanced registries (CT, mammo, etc.)?**

Yes: 15 (72%) No: 4 (19%) No answer: 2 (9%)

If so, which one(s)?
- "I work in CT & MRI and will be taking the registries in up coming years."
- "Thinking about CT."
- "In the future either CT or MRI."
- "Mammography."
- "Don't know yet."
- "Mamm & CT."
- "Computed Tomography."
- "CT or Specials."
- "Specials, CT / MRI."
- "I'll see."
- "Oct. 97 I'm taking mammography boards."
- "Mammo, C.T."
- "CT."
- "Mammo & CT."
- "Quality Assurance."

ADDITIONAL COMMENTS:

- "Need to slow down on turning out such large classes. Jobs are not out there to fill!!! Employers are looking for experienced technologists. I was unemployed for 9 months after clinicals very frustrating."

- "As I said above, on campus the classroom time was adequate and I guess for the ARRT Registry not a lot more class time is needed for the test but to become a better overall tech I feel more class time is needed in the clinical setting to learn more about contrast materials and their reactions, decreases and deformalities."

- "I think Ferris should have a refresher course to review if one does not pass the boards."

- "Before being allowed into the rad. program, students NEED to visit a hospital rad. dept. for @ least one full day -- if not more. People who think they're going into simply taking x-rays are very mislead."

- "Summer class was a pain and an inconvience [sic]."

- "I feel that a semester prior to being accepted into the program students should have to be in the hospital assisting techs. This would improve the knowledge of the students entering the classroom and weed those ones out that find they don't care for it, and then they wouldn't waste 3 years of schooling. I didn't like x-ray and would not have continued had I been required to spend a semester in the hospital prior to acceptance. I was in the classes and hated them but kept thinking internship will be better. I got into internship and hated that too, but felt that with only one year left I should finish. I thought maybe someday I'll use it. But the summer I was ready to give it all up. My ACI convinced me to finish. I'm glad she did, but I will probably not use it. I can't say never because you just don't know. Now, I'm not saying this because I did poorly because I did very well. I graduated with high honors and had a 3.95 in the x-ray program. I took my registry and passed the registry with an 82%. I never studied because I just didn't care at that point. I was obviously well prepared because I ended up passing after not looking at the material for 2 months. My biggest grief is that people are not required to go into the hospital for a semester previous to acceptance. 1 semester wasted is better than 6 semesters wasted."

- "I was very disillusioned with Ferris after graduation - August '96. I worked relief at the hospital & 3 clinics to secure a job. That is stressful & there are NO benefits. I was a displaced worker who had struggled to get thru 3 yrs of schooling only to find relief positions! I finally got my foot in the door at Mercy with part-time. Some of us are NOT willing to relocate for a job."

COMMENTS cont.

- "I think the administration should open up and give Bob and Joel more freedom. Personally, I would have liked to have more hands on type things instead of memorizing crap that you cannot attach to anything. The only way this can work is if the administration would let the students actually practice by taking real x-rays. With the amount of money this program brings in per year, this should not be a problem. I know Bob and Joel both and think they are both great people. I didn't have Bob as a teacher, only as an advisor which he was terrific and he helped me find what I truley [sic] want to do. I did have Joel and think he is a great teacher when they let him teach x-ray. The biggest Joel needed when I was there is what they both probably need now, Freedom to act and do what they feel needs to be done because they both have proven to me if they had that, then I would have had a better Radiography education at Ferris. From what I saw of the treatment of Joel when I was there, Ferris State should feel pretty damn lucky he is still there. I am one of the worlds greatest lovers of capitalism, but Ferris is capitalism run amuck. The administration runs the program as a business, as it should, but they have perverted the balance. Instead of the best product at the lowest price, I got a subpar product at an inflated price. This is not the falt [sic] of Joel or Bob. All businesses need to show a profit to stay alive, but a bunch of overeducated idiots (higher ups) should not lose sight of common sense practibility [sic]. I got very little from sitting in a classroom memorizing. In fact, I got to the point of not caring, and did enough just to pass my classes. When I was able to attach things to what I was doing at Butterworth, I tore the place up. This was helped with the freedom Kay has there, which much to her credit she trickles down to us. I think this illustrates what Joel and Bob could do if they weren't shackled to shuffling paper and administrative duties, and left free to act on their own free judgement [sic]. At least I hope so."

- "Inform students of the mammography courses that they can take at Baker, O.C.C., or through MTMI to get a certificate in Mamms. Very beneficial to get job!"

FERRIS STATE UNIVERSITY RADIOGRAPHY PROGRAM
Graduate Survey Data 1998

1. Year of graduation: _____1997_____

2. Are you presently employed as a radiographer? __14 (82%)_ YES __3 (18%)_ NO

3. If you are <u>not</u> currently employed as a radiographer, please indicate your reason(s):

_____ Looking, but can't find a job
_3 (100%)_ Continuing education
_____ Chose other profession
_____ Chose to not work
_____ Other: _____

4. If you are employed as a radiographer, is it: ____8 (57%)_ full time or ___6 (43%)_ part time?

5. If you work part time, is that your choice? _3 (50%)_ YES _3 (50%)_ NO

6. How did you find this job?

6 (43%) internship site
6 (43%) classified ad
2 (14%) friend/family
_____ job service
2 (14%) word of mouth
_____ other: _____

7. In which general area of radiology are you PRIMARILY employed?

14 (100%) Diagnostic radiography
_____ Mammography
_____ CT
_____ Cardiac Cath
_____ MRI
_____ Angiography
_____ Sonography
_____ Administration
_____ Education
_____ Nuclear Medicine
_____ Radiation Therapy
_____ QA/QC
_____ Other: _____

8. What is your approximate yearly salary?

_____ under $15,000
5 (36%) $25,000 to 30,000
3 (21%) $15,000 to 20,000
1 (7%) above $30,000
5 (36%) $ 20,000 to 25,000

9. On the following scale, circle the number that indicates how difficult it was for you to find a job as a radiographer.

5 ---------- 4 ---------- 3 ---------- 2 ---------- 1

Very easy	Easy	Moderately difficult	Difficult	Very difficult
2 (14%)	6 (43%)	3 (21%)	2(14%)	1 (7%)

10. Following graduation, approximately how long did you have to look before you found your first job as a radiographer?

7 (47%) Before graduation
4 (27%) Within 1 month
1 (7%) 1 – 2 months
_____ 2 – 4 months
2 (13%) 4 – 6 months
1 (7%) Yet to find a job

11. How well did you feel you were prepared clinically for a job as an entry-level radiographer?

5	4	3	2	1
Well prepared	Adequately prepared	Unsure	Unprepared	Very unprepared
7 (47%)	8 (53%)			

12. SEE BELOW

13. How would you rate the program's overall didactic (classroom) instruction for preparing you for passing the ARRT registry?

5	4	3	2	1
Excellent	Above average	Adequate	Poor	Unacceptable
5 (31%)	3 (19%)	7 (44%)		1 (6%)

14. Are you considering taking one or more of the following ARRT advanced registries? Check all that apply.

6 (35%) CT
7 41%) Mammography
1 (6%) Quality Assurance
1 (6%) MRI
1 (6%) Cardiovascular Interventional

15. SEE BELOW

16. Would you be interested in taking any of the above courses at one of our off-campus locations?

5 (29%) Grand Rapids
3 (18%) Flint
1 (6%) Traverse City
2 (12%) Other:
1 (6%) Lansing
1 (6%) Muskegon C.C.

18. How would you rate the overall quality and effectiveness of the program?

5	4	3	2	1
Excellent	Good	Fair	Poor	Unacceptable
8 (47%)	7 (41%)	1 (6%)		1 (6%)

19. Would you recommend this program to a friend or family member?

14 (88%) YES
2 (12%) NO

19. **How could the program aid students in their job search?**

- Keep a job board available in the department. Have hospital's send availability to Ferris.
- I would like to see the college more involved.
- Help with student with a resume.
- Tell them realistically that there are few full-time jobs. If all they need is part-time work, radiography is good. Tell them to begin early, but most positions are flex techs.
- Some kind of segment through last weeks of course work devoted to job search methods, resume prep, interviewing, etc.
- By not increasing the number of students per year. This will help prevent the job market from being glutted.
- Have the students prepare a resume – mock interview. Introduce students to Ferris's job placement office. Show the students where to look.
- I think what is done now is sufficient.

20. **How can we improve the clinical internship portion of the program?**

- During my internship, the rules regarding attendance and attaining masters were extremely lax.
- The two portions of this program should be intertwined maybe a semester of classroom – then go out to the clinical site for a semester – then come back to campus – students would be exposed to more and have more questions. (Other schools seem to accomplish this)
- I was satisfied with my clinical internship, the only thing I didn't approve of was the tests from Ferris only because we were so busy with our studies for our internship site, and it was over different info. than what we were currently working on.
- Stress class work.
- Making sure the ACI is 110% devoted to students and pairing students up at sites.
- This portion of the program was pretty good. Maybe have more tests. Then have the clinical instructor visit the sites more often.
- Having more contact with interns while they are on clinical internship. Especially when there is only one student per site.
- I would like to see more connection to the college, I felt once we left FSU for clinical FSU dropped out of the picture unless it was test time.
- Split internship with classes.
- Great internship.
- By having all placements made at the same time.

21. **How can we improve the classroom portion of the program?**

- Too much poloticks [sic] and discord in the program and in isolated cases. Unprepardness [sic] by the instructor.
- Better mobile experience in lab to understand how to better get good grid alignment on odd >'s.
- More physics for registry preparation.
- Deal a little more with trauma procedures.
- Make labs more real, I think you should have an oxygen tank, wheelchair, and a pole and have students see what's its really like.
- Tara and Joel had wonderful – instructor interaction during class – I hope this will continue with the new instructor.
- I think just stress more about med term, positioning, Anatomy. Have a little more hands on or labs.

25. **What area of your educational experience was the worst?**

- Already expressed.
- Skull anatomy.
- The start of clinical.
- The first 2 months of internship.
- The clinical selection process.
- Probably the wait to get into the program. And the fact that there are very few jobs and pay is not very good. As far as I'm concerned, all the money I spent and the reality in pay was disappointing.
- Lonliness – just being the only FSU student, no one to work with at same level.
- Summer semester.
- Nothing that I can think of, so it couldn't have been that bad.
- Clinical (nobody likes being an intern).
- Trying to prepare and remember everything for the boards.

ADDITIONAL COMMENTS:

- On the down side of that (internship) I believe we pay a little too much money to be used as free labor out in the hospitals. I understand the give and take of the situation, but they get away with way too much. Another thing that I think would be beneficial would be to expose students to other sites. – big & small hospitals – clinics Maybe this could be done in the summer semester. Just so they could get a taste of how different things can be. My own experience, I started internship at West Shore Hosp (sm-med) and went in June to Butterworth (huge) to finish. It almost felt like I was starting all over again. They did everything different. It was a great experience for me to see how big the change can be. Right now i am in a clinic and that is a complete change from the hospitals. Hope this all made some sense.
- I'm aware you can't have paid internships but is it possible to have a discounted tuition bill since we're sacrificing for a year and working a 40 hr. work week? Or a stipend pay?
- The program was an all around good experience, but in the real world things you learn don't happen. If students ask how the job market is tell the truth and tell them it's very saturated with radiographers and very few jobs. Flex tech was about the only job you can find. But working that don't pay for all the school bills plus all the other bills you have. The pay rate was lower than I was told when starting the program. So just tell all the students the truth.
- I am enrolled in ultrasound program at Lansing Community College and will finish in Aug, 1998. I had not studied for my x-ray boards, because of studying for ultrasound classes. I passes my x-ray boards in Oct. and thank the Ferris program for an excellent education and review classes. If by any chance you start an ultrasound program, or know of any jobs in ultrasound in the end of Aug, 1998, I would appreciate any help. Thank you.
- I think students should spend more time at their clinical site before their internship to see what's it's really like. I felt very under prepared when it came to the real world of the hospital, students should know clinical site in Jan.
- The processor QA program that Mr. Rescoe runs in lab is beneficial because it has helped me – I am now in charge of our mammo processor QA, along with learning CT. I have also been trained in DEXA, and we are about to start Angio procedures (we just got a new digital GE unit).
- My education provided me with a full-time job – life is good!
- When invited by the Dean to drop by and introduce myself (for making the Dean's List) I didn't because I felt my opinions of the program would make no difference.
- In all the program was a good program. However you should limit enrollment due to limited job opportunities.

12. Of the following subject areas, please indicate which ones that you feel were most beneficial and which ones were least beneficial to you as a radiographer. Rate each subject using the following scale:

1 = Extremely beneficial 2 = Somewhat beneficial 3 = Unsure
4 = Slightly beneficial 5 = Non-beneficial

n = 15

	5	4	3	2	1
Anatomy					15 (100%)
Computers	3 (20%)	3 (20%)		7 (47%)	2 (13%)
Physics	1 (6%)	3 (20%)	3 (20%)	5 (33%)	3 (20%)
Math	2 (13%)	3 (20%)		8 (53%)	2 (13%)
Internship					15 (100%)
English	3 (20%)	6 (40%)	1 (6%)	5 (33%)	
Med Term	1 (6%)			1 (6%)	13 (87%)
Processing	1 (6%)	1 (6%)		7 (47%)	6 (40%)
Pathology				6 (40%)	9 (60%)
Clinical Education			2 (13%)		13 (87%)
Rad Protection	1 (6%)			2 (13%)	12 (80%)
Techniques		1 (6%)		3 (20%)	11 (73%)
Patient Care		2 (13%)		1 (6%)	12 (80%)
Rad Biology	1 (6%)	2 (13%)		6 (40%)	6 (40%)
Registry Review			1 (6%)	3 (20%)	11 (73%)
Ethics	1 (6%)	2 (13%)	1 (6%)	10 (67%)	1 (6%)
Positioning				1 (6%)	14 (93%)
QA	1 (6%)	2 (13%)	1 (6%)	5 (33%)	5 (33%)
Labs		1 (6%)		4 (27%)	10 (67%)
Humanities	3 (20%)	5 (33%)	2 (13%)	4 (27%)	1 (6%)

15. What if any of the following areas would you be interested in taking as post-RT certificate courses at Ferris in the future? Please use the following scale to indicate your interest level in each area:

	1 = Very Interested	2 = Somewhat Interested	3 = Not Interested
CT	7 (47%)	5 (33%)	3 (20%)
MRI	3 (20%)	5 (33%)	7 (47%)
Mammography	7 (47%)	2 (13%)	6 (40%)
Ultrasound	7 (47%)	2 (13%)	6 (40%)
Quality Assurance	0 (0%)	4 (27%)	11 (73%)
Cardiovascular Interventional	2 (13%)	4 (27%)	9 (60%)

FACULTY EVALUATION OF PROGRAM

Method

The Faculty Survey was distributed to the three full-time tenure-track and one supplemental faculty members. All four surveys were completed and tabulated.

Analysis

The faculty perceives deficiencies in the following areas:

1) The organization and structure of courses.
2) The use (or non-use) of a Labor Market Analysis.
3) Adherence to JRCERT standards and principles.
4) Relevance and availability of supportive courses.
5) Program recruitment efforts.
6) Use and timeliness of advisory committee.
7) Faculty and/or student use of the Allied Health Library.

The survey indicates, and the faculty commented, that since the last PRP report, there has been marked improvement in the cooperation and teamwork between faculty members. This data also indicates that the faculty perceives strength in the clinical education portion of the program; and the availability of teaching, AV, office, and computer resources.

Recommendations and Actions

1) The organization and structure of the courses within the radiography program will be evaluated and revised during the Curriculum Review process presently taking place.
2) A detailed labor market analysis was performed and has been reported in this document. This process should be repeated periodically to ensure the focus and future growth of the program.
3) As part of the Curriculum Review process, the program is currently looking at the content of the required non-professional courses to determine their relevance and availability.
4) Even though historically the program has no need for recruitment efforts (please see Enrollment Trends), the faculty feels that to be proactive, they need to formulate a long-range recruitment plan.
5) The program is currently scheduling regular (twice per year) Advisory Committee Meetings. In addition, the Advisory Committee members were recently sent a survey to determine their perceptions of the program. The data from that survey is included in this document.
6) It is felt that at this time, neither the students nor the faculty use the Allied Health Sciences Library to its fullest potential. The faculty feels that the move to the new library will help promote this resource.

DATA FROM 1998 FACULTY SURVEY

n = 4

Scale: 5----------4----------3----------2----------1
Excellent Good Fair Poor Unacceptable

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1. Curriculum designed to facilitate student learning. **3.25**
COMMENTS:
- Discrete 1 yr. than 1 yr. clinical not ideal for retained applied learning.

2. Faculty empowerment in program development and long-term strategy. **3.50**
COMMENTS:
- Lack info & luxury of time to plan ahead.

3. Faculty participation in program development. **3.00**
COMMENTS:
- Real decision making remains with admin.

4. Organization and structure of courses. **2.25**
COMMENTS:
-Need curr. review some redundancy, obsolete content, some gaps.

5. Use of course and program objectives. **3.13**
COMMENTS:
- Better integration of courses & delineation of content with accountability.

6. Use of labor market analysis. **2.25**
COMMENTS:
- Data collection and analysis should be done at least every two years.
- Disregarded if in conflict with retention or enrollment goals.

7. Appropriateness of student textbooks. **4.00**
COMMENTS:
- Textbooks are appropriate, but should be used more to justify high cost.

8. Availability and student use of computers and the internet. **3.88**
COMMENTS:
- Reliability can be a problem, limits mandated activities.

9. Adherence to JRCERT standards and principles. **2.75**
COMMENTS:
- More adherence as accreditation visit approaches.

10. Integration and use of student follow-up information. **3.00**
COMMENTS:
- Information is available but seldom used.
- Improving since accreditation process in place.

11. Relevance and availability of supportive courses. **2.50**
COMMENTS:
- Much student frustration stems from unavailability of non-program courses.
- Ethics and computers integrated into RADI courses?

12. Administrative response to faculty input. **3.33**
COMMENTS:
- See response to #9. Let's hope there isn't a regression after the visit!

13. Quality and number of available internship sites. **4.13**
COMMENTS:
None

14. Overall quality of clinical education. **4.13**
COMMENTS:
- Didactic portion of clinical must be revised and made more relevant.
- Need to assure new sites are positive & complete learning environment.

15. Technical and teaching ability of adjunct faculty (ACIs). **3.38**
COMMENTS:
- In general, the ACI's are very knowledgeable and very adept instructors.
- Some ACI's give no formal instruction. Much variation (too much?)

16. Technical, organization and teaching ability of Clinical Coordinator. **4.67**
COMMENTS: **(1 N/A)**
- Much improved since permanent faculty hired- temporary previous 5 years.

17. Program communication with and response to clinical sites. **4.13**
COMMENTS:
- Must continue to nurture these valuable relationships.

18. Program availability and accessibility to students and potential students. **3.75**
COMMENTS:
- To many advisees to do this duty properly.

19. Program recruitment efforts. **2.38**
COMMENTS:
- Little or no recruitment has been done in recent years.

20. Program efforts to achieve a bias-free environment. **3.63**
COMMENTS:
- fac? Better effort shown lately. Yes- student perspective.

21. Provisions, availability, and relevance of student advisement. **4.00**
COMMENTS:
- See #18 comment.

22. Faculty participation in college and University committees. **3.88**
COMMENTS:
- Good considering core responsibilities & demands.

23. Use and timeliness of advisory committee. **2.25**
COMMENTS:
- Advisory Committee meetings need to be held on a regular (at least annual) basis.
- Need more frequent meetings and action based upon input.

24. Availability and accessibility of adequate classrooms and AV equipment. **3.75**
COMMENTS:
- Lecture in VFS would enable use of computerized and visual resources.

25. Size and configuration of laboratory space. **3.50**
COMMENTS:

26. Quality and availability of teaching / learning aids. **4.50**
COMMENTS:

27. Quality and quantity of radiographic (lab) equipment. **4.13**
COMMENTS:
- Good support administratively. Perkins VocEd funding.

28. Availability of office equipment and supplies. **4.25**
COMMENTS:
None

29. Size and layout of office space. **3.75**
COMMENTS:
None

30. Quality and applicability of computer equipment for instructors. **4.25**
COMMENTS:

31. Availability and timeliness of computer support. **4.25**
COMMENTS:

32. Applicability and accessibility of library resources. **3.38**
COMMENTS:
- Library resources are excellent, yet under utilized by the students.

33. Faculty and/or student use of Allied Health Sciences Library. **2.38**
COMMENTS:

34. Availability of fiscal resources sufficient to provide quality instruction. **3.25**
COMMENTS:
- Only with VocEd funding! The university needs to provide additional resources for clinical/didactic faculty.
- Good equipment/hardware support. Need more S & E funding.

- I felt summer sem3ster lacked a lot of GI/IVP, type positioning that was "crucial" to learning before internship.
- More lab experience dealing with pt. care and positioning.

22. **What subject areas should be added to the curriculum?**

- Go a little more in depth with vitals – med support.
- I believe a course higher than basic biology would be very beneficial.
- More emphasis on patient care – more practice with vitals and assessment.
- Job search method?
- I think maybe that's covered pretty good.
- Adding to the curriculum would be difficult within the time span – "classroom time".
- I think a anatomy just for us would be very very helpful plus a general physics.
- Physics.
- Seminar on how to deal with upper management.
- More information in the med-support area.

23. **What subject areas should be de-emphasized or omitted?**

- Required "ethics" class was a waste of time.
- Less time on processor during lab and more time on techniques and positioning.
- Probably the shielding part of it or physics, because in reality you can't shield pt. that's sad but true. Processing because you really don't need to know any of that after you get out of class. English.
- I felt all were needed!
- Specifics such as techniques which vary from hospital to hospital as they are hard to change once you are at your site.
- Mock trauma thing.

24. **What area of your educational experience in the radiography program was the best?**

- Internship – I learn with hands on.
- College classes.
- Being hired on as a student was the best in that I was able to "practice" and get a lot more hands on experience than other students.
- Internship!
- Joel Rescoe as a teacher and Butterworth's teachers.
- Classroom lectures were excellent! Joel was great. Jim (clinical coordinator) is doing an excellent job!
- Probably the internship was the best experience. Because it was the real thing. Hands on experience.
- I really enjoyed my instructors – and the fact that they were very approachable.
- Clinicals – actual "hands on".
- Clinical internship.
- The end of clinical.
- Internship, labs.
- Internship.
- Mr. Rescoe's classes and labs.

35. Availability of textbooks and periodicals to instructors. **3.25**
COMMENTS:
- A budget should be established for books & periodicals for full time and adjunct faculty.

36. Overall program quality. **3.25**
COMMENTS:
- Always in need of improvement.
- The program is steadily improving, but still has a long way to go to be the national leader it can be.

37. Faculty works together as a team. **3.25**
COMMENTS:
- Teamwork is improving.
- Has gotten better.
- Shows improvement. Need more team rather than self interest. Student focus! Must prevail.

38. College and University administration foster a positive work environment. **3.17**
COMMENTS:
- Upper admin could do more to value input & dedication of employees. Treat all equal. Share info.

39. Availability of college administration. **3.50**
COMMENTS:
- Dept. Head & Pgm Coord. are only part time- not blaming them, but this is a problem. RADI changes too fast and requires full time attention to keep up!

40. Adequate education to meet national standards (JRCERT, etc.). **3.13**
COMMENTS:
- Need to improve registry result. Good preparation for actual applied/employability skills.

ADDITIONAL COMMENTS CONCERNING COURSES / CURRICULUM
- The curriculum should be divided into discrete, content intensive courses. This would better facilitate student and instructor focus as well as provide the program with better control of the overall curriculum. It would also provide the program with the ability to assess the effectiveness of each part of the curriculum.
- Need for comprehensive curriculum review. BS degree?

ADDITIONAL COMMENTS CONCERNING CLINICAL INTERNSHIP
- Continued efforts toward "uniformity" while respecting unique nature of clinical site & protocols.
- The clinical portion of the program needs to be more universal. Each clinical site should be providing each student with the same educational process and opportunities. Uniformity and control of the internship process must be strengthened to establish and maintain high standards of educational quality for all students of the program.
- Mandatory site visit for 1st years prior to signing up for a site.

ADDITIONAL COMMENTS CONCERNING QUALITY OF INSTRUCTION

- Assess faculty roles & place in roles to which they are best suited by talent & inclination. Integrated 2 year continuing instruction (didactic) necessary. Can't stop after 1 year.
- Our main concerns should always be the actual quality of instruction and how the program is perceived by students, administration, peers, and the profession. As faculty, we need to be open to constructive criticism so that the overall quality of the program can be improved without bruising egos. The professional curriculum needs to be reinvented and restructured from top to bottom, because, at present, we are not providing enough basic knowledge necessary for our students to become professional radiographers. This curriculum review and revision is the most important step we can take toward keeping our program viable. Additionally, there is a real concern that courses taught outside the program are not giving our students what they need. We need to work closely with other instructors and other colleges to insure that we provide our students with the highest quality educational experience possible.
- Sequence in program.

ADDITIONAL COMMENTS CONCERNING ADMINISTRATIVE / STAFF SUPPORT

- In general, administrative and staff support is pretty good, however, administration needs to be more demonstrative and direct when dealing with internal and external program issues. Upper administration needs to be more concerned with program quality and reputation than enrollment and retention statistics. It doesn't do any good to produce lots of poorly educated, unhireable students!
- Program & faculty & student advocacy is encouraged. Improve availability and role as education / learning facilitator. Recognize individual and group dedication.

ADDITIONAL COMMENTS CONCERNING AVAILABILITY OF RESOURCES

- Laboratory, computer, and AV resources are more than adequate thanks to Voc Ed funding. Otherwise, the University and the college are so concerned with inching pennies that program quality suffers. It is hard to understand the logic behind the salaries paid by the University while complaining about costs that provide the student with the educational opportunities they deserve.
- Well program could use 1) time to think ahead, develop initiatives, revise lessons (update), advise students, 2) opportunities for professional specific training, 3) additional faculty?
- Students need to be made aware of career services & Allied Health Library. *Internet.

ADDITIONAL COMMENTS ONCERNING OVERALL PROGRAM QUALITY

- ACI's full of valuable info. Get input on areas they see as weaknesses. Follow up surveys – lots of info.
- It is (unfortunately) well known that the quality of this program is not what it could be. We have an unbelievable opportunity here to be a nationally known and respected program, but to do so; we need to redesign the entire program from the inside out. We need to acquire and analyze relevant data from all sectors of our customers (students, industry, clinical sites, faculty, regulatory agencies, etc.), consistently reevaluate our mission and goals, set and assess our projected outcomes, and build a program that produces students that we can be proud of. To properly accomplish these tasks, resources (especially time) and support must come from the top. The program must also support itself! We can only get better if we all work toward a common goal ... a quality education for all students.
- Students should be our focus – program improvements / actions should be justified with this in mind. Expand computer applications within program as learning & communication tool. Links with clinical environment.

EMPLOYER EVALUATION OF PROGRAM

Method

The method for the distribution and collection of employer surveys has changed in the past two years. In 1997, the graduates were asked on their Graduate Survey to 1) indicate their present employer, and 2) give us permission to contact them. On return of the Graduate Surveys, a survey was sent to all employers named. From approximately twelve such mailings, four employers responded. In an attempt to raise the return rate, in 1998, a copy of the survey was sent with the Graduate Survey with a request to give it to the graduate's employer. From the 48 surveys sent to graduates, four employers responded.

Analysis

1) In all areas surveyed, employers indicate that the program's graduates meet or exceed their standards.
2) The technical, interpersonal, and behavioral skills of the graduates are meeting the needs of the employers.
3) It is noted that the return rate of these surveys is not high enough for statistical validity.

Recommendation and Actions

1) With only limited data, it appears that employers are satisfied with the program's graduates, so this information will not be used for any direct recommendations at this time.
2) The program must determine how to increase the return rate of the Employer Survey.

RAW DATA FROM EMPLOYER SURVEY - 1997

Number of responses: 4

Scale used:

4 = Exceeds Standards 3 = Meets Standards 2 = Below Standards 1 = Unacceptable

SKILL / BEHAVIOR		AVERAGE SCORE
1)	Technical ability	3.25
2)	Broad radiographic knowledge	3.5
3)	Quantity of work produced	3.25
4)	Ability to work independently	3.5
5)	Attitude	3.375
6)	Interpersonal skills	3.5
7)	Professional behavior	3.5
8)	Adaptability	3.25
9)	Reliability	3.5
10)	Overall performance	3.5

Professional strengths and weaknesses of our recent graduates.

- "Professional behavior. Willingness to be flexible in hrs. worked. Excellent quality in procedures performed. Highly skilled and well prepared."
- "Book smart - she was a good employee but lacked initiative the entire last semester. Did not give two weeks notice. Seemed pre-occupied."
- "Considering prior to completion of the internship program this individual came to us classified as a "mediocre" student -- this person/grad meets or exceeds the above categories at this time."

Areas for better preparation.

- "Because of initiative of last years interns (coming back early - voluntarily) from breaks in school schedule they have adapted very well to shortened internship program."

RAW DATA FROM EMPLOYER SURVEY - 1998

Number of responses: 4

Scale used:

4 = Exceeds Standards 3 = Meets Standards 2 = Below Standards 1 = Unacceptable

SKILL / BEHAVIOR		AVERAGE SCORE
1)	Technical ability	3.50
2)	Broad radiographic knowledge	3.50
3)	Quantity of work produced	3.75
4)	Ability to work independently	3.75
5)	Attitude	3.75
6)	Interpersonal skills	3.75
7)	Professional behavior	3.75
8)	Adaptability	3.75
9)	Reliability	3.75
10)	Overall performance	3.75

Professional strengths and weaknesses of our recent graduates.

- "[The student] came in very knowledgable and confident. I could tell he had a lot of hands on experience which is very important to our department. [The student] has a solid foundation and I believe he will become one of the superstars in our field."

Areas for better preparation.

- "None noted at this time."

ADVISORY COMMITTEE EVALUATION OF PROGRAM

Method

In August 1998, a survey form was sent to each of the following members of the Advisory Committee:

Kari Beach, RT(R)	Radiographer
Bob Davis	Layperson
Jerry Jeurink, RT(R)(T)	Dosimetrist
Ricky Kauffman, RT(R)	Adjunct Clinical Instructor
Ron Lesneski	Radiology Administrator
Gerald Luster	Radiology Administrator
Pam McFalda	Radiology Administrator
Deb Pojar, RT(R)(C)(M)	CT Technologist
Laura Reintges, RT(R)(M), RDMS	Ultarasonographer
Randy Robinson	Business
Kristen Manske-Vandegrift, RT(R)	Radiology Manager

From these eleven mailing, three members responded (27% return rate).

Analysis

1) The surveys indicate that the members feel that the program has improved since the last survey was taken. The major areas of improvement seem to be with the student's clinical preparedness and the program's instructional equipment.
2) The members also see the need for additional training (post-associate degree) in the form of certificate programs.
3) The Advisory Committee rated all of the survey criteria as acceptable or better.
4) A need to review the program's content on technique formulation is noted.

Recommendations and Actions

1) Post-associate degree certificate programs in ultrasound and mammography are being developed, and the demand for further certificates in CT, MRI, Cardiovascular-Interventional Technology, and Quality Assurance are being investigated.
2) Course content, including the principles of technique formulation, will be analyzed during the program's Curriculum Review process.

DATA FROM 1998 ADVISORY COMMITTEE SURVEY

n = 3

Scale:

E = Excellent (nearly ideal, top 5 to 10) **G = Good** (strong rating, top one-third)

A = Acceptable (average, middle one-third) **BE = Below Expectations** (fair, bottom one-third)

P = Poor (seriously inadequate, bottom 5 to 10%) **DK = Don't Know**

	E	G	A	BE	P	DK	COMMENTS
1. Instructional program content: - Based on performance objective that represents job skill and knowledge required for successful entry-level employment.		3 (100%)					"Students have good concepts of positioning but little concept of technique formulation" "Continued commitment from FSU to maintain a high quality standard for the students" "Much more improved in the course of past 2 years"
- Designed to provide students with practical job application experience.		3 (100%)					"The clinical environment is ideal with compliment from campus"
- Periodically reviewed and revised to keep current with changing job practices and technology.	1 (33%)		2 (67%)				"Has improved, but must continue"
2. Instructional equipment: - Current representative of that used on the job.			2 (67%)			1 (33%)	"Some improvement recently"
3. Instructional facilities: -Allocate sufficient space to support quality instruction.		2 (67%)				1 (33%)	"See comment below" "Is there enough room in your labs?"
4. Placement: - Job opportunities exist for students completing the program or leaving with marketable skills.		1 (33%)	1 (33%)			1 (33%)	"Nationwide – yes. Locally & statewide is pretty saturated"

From your perspective, what are the major strengths of the Radiography Program?

-"Students are more prepared for clinical setting"

- "Overall – a very good opportunity for students to learn and achieve professional goals and standards. Joel Rescoe, Jim Mayhew, Bob Holihan – a very solid knowledge base & willingness to change as needed for bettering the program"

-"Good anatomy & positioning skills demonstrated by skills. The students I have had direct contact with have an eagerness to learn and strong work ethic"

From your perspective, what are the major needs for improvement in the Radiography Program?

-"More collaboration between FSU and clinical setting"

- "Adding more to the end, if students are interested – 1 semester of CT for certificate or specials or another imaging modality that doesn't already have an established curriculum"

- "1) Need to guarantee students adequate time in other diagnostic modalities such as CT, mammography & ultrasound at their clinical sites. One day is not sufficient to give students any comprehension of other modality principles. 2) Regarding technique formulations for general radiography in non-phototimed environments, perhaps more emphasis needed on "comparative" technique formulations. For example, if a student knows the radiographic technique for a shoulder radiograph, that same technique would serve as a baseline technique for a knee radiograph. Technique formulation can be an elaborative learning experience by teaching the students ways to build on what they already know"

ADJUNCT CLINICAL INSTRUCTORS EVALUATION OF PROGRAM

Method

In late July of each year, the program sponsors an Adjunct Clinical Instructor's meeting here on campus. One of the primary functions of this meeting is to gather input from the ACIs as to the effectiveness of the program. It is at this meeting that the Adjunct Clinical Instructor's Survey is distributed with instructions to complete and return it as soon as possible. Additional surveys are sent to those ACIs that were not able to attend the meeting. In 1997, 14 of the (then) 22 ACIs completed and returned the questionnaire for a 64% return rate. In 1998, however, only three have returned the survey at this time. The program expects to collect additional surveys in the near future.

Analysis

1) The faculty feels that these surveys reflect an increase in program communication and leadership.
2) The data also shows an improvement in the student's skills and preparedness for their clinical internship.
3) These surveys indicate that the ACIs still feel that the students have cognitive deficiencies in technical factors, physics, radiation protection, radiation biology, and radiographic equipment.
4) Data and comments indicate that the Adjunct Clinical Instructors see the program heading in the right direction after several years of confusion and uncertainty.

Recommendations and Actions

1) Content areas including technical factors, physics, etc. will be analyzed and revised during the Curriculum Review process.
2) The program must work closely with the ACIs to ensure that those students entering the clinical portion of the program have the requisite knowledge and skills to be successful in the clinical setting.
3) The ACIs must also be more thoroughly integrated into the policy and decision making processes of the program.

RAW DATA FROM ACI SURVEY - 1997

Number of respondents: 14*

Scale used: 5 = Excellent 4 = Good 3 = Fair 2 = Poor 1 = Unacceptable

	CRITERIA	AVERAGE SCORE
1.	Availability of Clinical Coordinator	4.39
2.	Competence and clinical ability of Clinical Coordinator	4.62
3.	Communication between the Clinical Coordinator and ACIs	4.62
4.	Appropriateness and timeliness of tests and quizzes	4.62
5.	Appropriateness of clinical policies	4.15
6.	Program's adherence to and enforcement of clinical policies	3.62
7.	Program's willingness to listen to and incorporate ACI suggestions	4.23
8.	Organization of clinical program	3.62
9.	Program administration's leadership and communication	3.62
10.	Program's response to perceived clinical needs	3.77
11.	Overall impression of clinical program	3.92
	Student preparedness and ability following the academic portion of the program	
12.	Student's general understanding of radiographic concepts	3.46
13.	Student's psychomotor ability	3.54
14.	Student's patient care skills	3.54
15.	Student's professional behavior and interpersonal skills	3.77
	Student's understanding of:	
16.	Radiographic positioning and procedures	3.23
17.	Anatomy and physiology	3.62
18.	Technical factors	2.92
19.	Radiographic physics	2.62

20.	Principles of patient care and handling	3.54
21.	Radiographic processing	3.54
22.	Radiation protection and radiation biology	3.38
23.	Radiographic equipment	3.23

How would you improve the clinical program?

"Computer network for entire program (all sites on line). Develop consistency between sites pertaining to class time allowed etc. (content of class material)."

"More emphasis on clinical learning situations at FSU. More individual evaluation. Don't let students hide in the crowd. Eliminate passive learning situations as much as possible. Make them get their hands dirty."

"Please MAKE students visit ACTIVE clinical environments BEFORE enrollment."

"It is being done now. Jim Mayhew has picked the pace up again."

"Make students aware that when they go for internship - they're going to be learning to use their new skills."

"Go back to requiring hospital visits before applying!! There is ignorance toward the true role of a tech."

"Provide ACI's with uniform lesson plans so that each clinical site would be at the same level."

"Students are discovering what radiography is all about during their last year of the program. We should be providing a clinical experience earlier in the educational process. This would eliminate the student who decides x-ray isn't what they want to do, yet since it is their last year, they try to finish the program. These individuals find it hard to produce the level of commitment needed for this profession and can have a detrimental effect on the learning process for themselves and everyone else.

"I (we) think it would be nice to meet w/ the other students at Ferris to go over things & see how we are progressing etc."

How would you improve the overall program?

"See above. Also, while Physics is no longer an individual category on the registry, it is still necessary for a proper understanding of equipment operation and maintenance."

"The previously mentioned items. A tighter "reign" on Mr. Holihan's class material, content, and presentation manner."

"Increase people skills, problem solving, MOTIVATION. RT = a people service career not just a job!"

"Preparing the students, having them observe more what an x-ray tech's responsibilities are. This is very hard on campus, so maybe they need to be reacting with hospital/clinical sites more in their 1st yr."

"Make sure students can take corrective criticism."

"Chemistry, anatomy and physiology."

"See above."

"More open labs later in the day. Better lab help."

"Continuity & consistency at every phase with a high standard of quality as the goal."

What specific areas of the curriculum should be enhanced or added?

" Developing professional, work ethic and motivation within the students."

"As the market for entry-level radiographers hardens, it has become evident that marketability lies in cross-training. Everyone is leaner and meaner. Perhaps it is time to look at expanding to a 4 yr program to produce entry-level techs with practical backgrounds in other modalities."

"More advanced math, anatomy, physiology, chemistry, computer skills."

"G.I. work. Trauma work."

"Team work - in departments. Respecting staff."

"People skills, communication, computer skills, problem solving, teamwork."

"Image production."

"I think that figuring techniques should be enhanced, also I feel that the students should be required to spend more time at the hospital during their first year."

"Better understanding of technical factor selection & physics & rad.biology – as it pertains to the registry. Continued enhanced attempt toward professionalism as a student."

What specific areas of the curriculum should be de-emphasized?

"Butterworth Hospital - there are a number of other sites with quality "product" output - maybe even better - and equally talented ACI's. Don't let one site dictate the entire program."

"I don't know if we can afford to de-emphasize any area."

"QA - usually the role of senior techs. Student should be steered toward practical knowledge NOT flooded with documentation."

"I feel the new form for masters is going to be a little much."

"N/A"

"None."

Comments regarding program faculty, staff, administration, and the program in general.

"Better communication between Julian and the hospital / department administrator. Sell the quality of "our students", "our techs", and "our program" to the community/s. Post program information, job placement stats, ARRT reg. pass/fail rates, etc."

"Jim Mayhew is doing an outstanding job."

"More interaction between campus and clinical educators. More interacting in each other's environments. Better appreciation."

"The faculty has been very helpful and there when problems arise and follow them through."

"Things are going in the right direction!"

"Good."

"Program faculty must get out into the real world and actively participate as technologists. The role and practice of RTs are changing dramatically."

"Need to lessen the bureaucracy and organizational structure."

"Mathematics on the evaluation form often doesn't reflect spirit of the evaluation. ex: Clinical Performance Evaluation ⇒ student is doing o.k., not great, but alright. 3 = the student's performance is acceptable. Give the student all threes ⇒ 60/80 = .75 x 100 = 75%. 75% is a C-. Must have a C to progress in program.

"None."

"There seems to be a lack of 'energy' & desire from the top to really improve the program. De-emphasis on enrollment #'s with an emphasis to overall quality throughout the program."

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* One respondent felt unable to answer any of the questions.

CURRICULUM EVALUATION

At present, the Radiography Program's curriculum is a mixture of profession-specific, supportive, and general education courses. The foundations of this curriculum are the sequential Radiography (RADI) courses. Each of the first-year courses has lecture and laboratory components to provide the student with the appropriate mix of cognitive and psychomotor skills. Two 4-credit hour Radiography courses (RADI 120 and 130) are taught in the fall semester, two (RADI 140 and 150) in the winter semester, and one (RADI 160) 5-credit hour course is taught in the summer. The contents of these courses are integrated with each other, and preceding courses are requisite to succeeding ones.

The second year is comprised of a clinical internship experience that uses all of the knowledge and skills learned in the first year. In each successive semester of clinical, the student shows mastery in an increasing number of radiographic procedures, and gains experience in numerous areas within the radiology department. It is intended that by graduation, the student has gained the knowledge and skills necessary not only to pass the national registry, but also to be an effective and in-demand entry-level radiographer.

The program's entire curriculum will be going through major revision in the near future. The impetus for this comes from many sources both inside and outside the program. Data from numerous surveys (student, graduate, ACI, etc) highlight the need for additional and alternative course content. ARRT registry scores indicate the need to analyze the effectiveness of the curriculum. Faculty members and program administration see the necessity for a complete overhaul of the curriculum and structure of the program. Finally, the College of Allied Health Science's initiative for a "core curriculum" will mandate large-scale changes in the program. All of these influences leave little doubt that the program must immediately focus all of its resources on the development of a curriculum that will serve the needs of the students now and in the future.

The faculty of the program consists of three full-time tenure-track members:

Robert Holihan, RT(R)	Program Coordinator
Joel Rescoe, RT(R)	Faculty Member
Jim Mayhew, RT(R)	Clinical Coordinator

Each faculty is in good standing with the American Registry of Radiologic Technologists. Mr. Rescoe and Mr. Mayhew are presently completing their Masters Degrees in Career and Technical Education at Ferris State University. Please see the Appendix A for CVs and CEUs.

NAME_____

FERRIS STATE UNIVERSITY
COLLEGE OF ALLIED HEALTH SCIENCES
RADIOGRAPHY PROGRAM
ASSOCIATE IN APPLIED SCIENCE DEGREE

FIRST YEAR

1st Semester

* MATH 110 Fundamentals of Algebra	0	___
RADI 120 Rad. Tech. I	4	___
RADI 130 Rad. Imaging	4	___
BIOL 109 Basic Human Anat. & Phys.	4	___
**ISYS 105 Microcomputer Applications	3	___
	15	

2nd Semester

RADI 140 Radiologic Positioning	4	___
RADI 150 Related Rad. Topics	4	___
ENGL 150 English 1	3	___
MRIS 102 Medical Terminology	1	___
Social Awareness Elective	3	___
	15	

3rd Semester

RADI 160 Advanced Rad. Positioning	5	___
ENGL 250 English 2	3	___
HUMN 220 Ethics in Health Care	3	___
HLTH 128 First Aid for Radiographers	1	___
	12	

SECOND YEAR

1st Semester

RADI 217 Clinical Educ. I	3	___
RADI 225 Clinical Practicum I	9	___
	12	

2nd Semester

RADI 218 Clinical Educ. II	3	___
RADI 226 Clinical Practicum II	9	___
	12	

3rd Semester

RADI 219 Clinical Educ. III	3	___
RADI 227 Clinical Practicum III	9	___
	12	

Total Credits = 78

* MATH 110 proficiency (demonstrated by placement exam)
** ISYS 202 will be acceptable.

DEANSMIS:4/12/96
cad:RADICASS.SEM

Ferris State University
Radiography Program
Labor Market Analysis

Overview:

Information from several sources was collected to arrive at the findings of this Radiography Program Labor Market Analysis. Much of the data is the most current available in the attempt to accurately convey existing and future occupational trends regarding graduate employment. Upon review of the findings, it will become apparent that some discrepancies exist between perceptions and realities of employment prospects for graduates/entry level radiographers. Long term job security issues and related academic implications will also be discussed. This report will articulate data from which the APRC may develop informed conclusions for further program recommendations and action. Members of the APRC are encouraged to review accompanying/available documentation supporting the findings of this analysis for a more complete picture of future educational direction and employment trends in radiography.

Discussion and Findings:

Duties of the entry-level radiographer encompass manipulation of general diagnostic equipment, patient care, assisting the medical staff in radiographic procedures, production of diagnostic images and compliance with department protocols (such as body substance precautions). There is increasing expectation from employers that graduates possess enhanced ability in problem solving, professional judgement, communication, team skills and patient education.[1] Most full time, long term career centered jobs require some measure of experience or multicompetence skills.[2] Diverse, multiple and unique professional proficiencies are the best insurance for sustained employment, career flexibility and growth for radiographers.[3] This fact of course carries with it academic implications for our radiography program. Our associate degree program is now designed to address competence in entry-level skills. We must adapt curriculum to address current and future employability needs for our graduates and industry if we are to maintain program prominence in the profession. We are attempting to do that by developing certificate programs that provide training in mammography or sonography, along with laddering options into the existing nuclear medicine program.[4] Core skill initiatives within the CAHS and curriculum emphasis upon problem solving, critical thinking and other evolving skills indicate the program is responding to perceived needs. Also under consideration is the possibility of a baccalaureate level professional program. Results of a professional educational summit indicate that future radiographer proficiencies and responsibilities are commensurate with this degree of education.[5] This outcome may require a higher academic caliber of enrolled student to insure reasonable probability of success associated with a more rigorous professional path. In any case, there is still much work to do regarding the development of an efficacious curriculum that grows and adapts to the occupational demands of the future.

Demographic trends indicate that Radiologic Technologists held about 5,750 jobs in Michigan in 1994.[6] About 25% of these jobs were part time positions. More than half of the jobs for technologists are in hospitals with the remaining positions in physician's offices, clinics and diagnostic imaging centers. Many Ferris graduates are hired at the sites in which they interned during their radiography program training. The projected job growth to 2005 for radiography is estimated at 17% or 170 openings annually in Michigan.[6] It is also important to note that the number of job vacancies tend to be regional and cyclical depending upon factors such as population growth or state legislation/regulation of the profession (such as licensure). Most job opportunities are currently located in southeast and northeastern states, with some opportunities in the southwest. This may present concern for students planning to reside in Michigan upon graduation.[3]

Standards of our professional accrediting agency, the Joint Review Committee on Education in Radiologic Technology, establish a program job placement rate expectation of not less than 75% within six months of graduation. Although some graduates prefer part time employment, it seems reasonable to assume that many graduates expect meaningful full time employment with benefits to the extent that a family can be comfortably supported within a reasonable time frame of about a year. Many existing entry-level positions are currently part time with no benefits. Graduates are initially encouraged to accept these jobs to gain experience for leverage in negotiating full time future employment. Due to the proliferation of postsecondary and hospital based radiography programs in Michigan, the job market is somewhat saturated. References indicate 413 radiography graduates in this state each year competing for 170 annual job openings.[7] Graduate surveys reflect this concern with a significant number (42%) expressing some difficulty in finding a professionally related job.[8] The data may reflect market demand or perhaps the need for enhanced job placement program initiatives. The Ferris State University Radiography Program continues to enjoy very good employment of graduates (95-100% over the past three years) despite potential market competition, according to graduate surveys and Ferris placement center data.[9] Validity and reliability of this data must be interpreted with caution due to the low number of survey respondents, especially when findings differ from other references. Our program must be careful to do what it can to address possible market oversaturation and adjust enrollment numbers accordingly to sustain the program while concurrently meeting the expectation of students regarding reasonable entry level employment prospects.

Summary: Relative to many other occupations, medical services, specifically medical imaging careers, has benefited from more than a decade of sustained growth. Employment opportunities are now moderating with pressure for cost containment and the demand for multicompetent professionals with diverse skills and initiative. The Ferris State University Radiography Program currently enjoys a good reputation from employers in providing the necessary applied skills for entry level employment, but vigilance and prudent planning are required to maintain our competitive edge. Curriculum must reflect the preparation of graduates with skills most desired by employers to maintain this advantage. Included in

this domain would be depth of student understanding, a refinement of judgement and professional behavior, core skills proficiency, problem solving and adaptation skills, interpersonal ability and of course multicompetence in many areas of medical diagnostics. There is presently greatest demand for employees with training in mammography and sonography in combination with general radiography. Such job expectations and proficiency may also require a higher academic caliber of enrolled students. Of paramount importance is the need to clearly communicate to prospective and enrolled students (future graduates) an accurate picture of employment prospects so that they may make the most informed decisions regarding their career plans and aspirations. There is more the program can do in regard to job networking, communication with students and collaboration with placement agencies such as those provided by Ferris State University to assist graduates in securing employment.

References:

1. Terrell-Nance, Sheila, and Julie Thomas. "Managers' Expectations Of Radiographers: A Survey." Radiologic Technology 62, no.5 (May/June 1991) : 79-104.

2. Akroyd, Duane, and Bonnie Wold. "Radiologic Science and Education." Association of Educators in Radiological Science. 3, no.1 (1996) : 6-15.

3. Excerpts from "Additional Skills Could Boost Opportunities for RT Graduates," Wavelength. Date and volume unspecified. Text refers to date of 1994.

4. Cosca, Theresa. "Occupational Outlook Handbook-Radiologic Technologists." Bureau of Labor Statistics. 28 Jan. 1998, 1-6.

5. American Society of Radiologic Technologists. "Final Report Of the National Educational Concensus Conference In the Radiologic Sciences." Radiography-The Second Century, Nov. 1996, 1-9.

6. "Radiologic Technician." Michigan Occupational Information System, 1998, 1-9.

7. American Medical Association. Health Professions Education Directory. 26th ed. American Medical Association, 1998/1999.

8. Graduate Survey for Ferris State University Radiography Program, 1998.

9. Terry, Ladi. "A Study of 1995-96 Graduates and Their Beginning Salaries." Ferris State University-Career Services, 1995/1996, 1-5, 38.

Supplemental References:

A. Hayfield, Scott. "Developing Educational Guidelines To Help Future Technologists." **Advance** for Radiologic Science Professionals. 16 Jun. 1997, 6-7.

B. Malone, P. "Increased Class Size: Need or Greed?" **Advance** for Radiologic Science Professionals. 11 Nov. 1996, pg. 3.

C. Classified job listings, Representative Examples from newspapers and professional journals. August and September, 1998.

D. CAHS Employment Prospectus, undated.

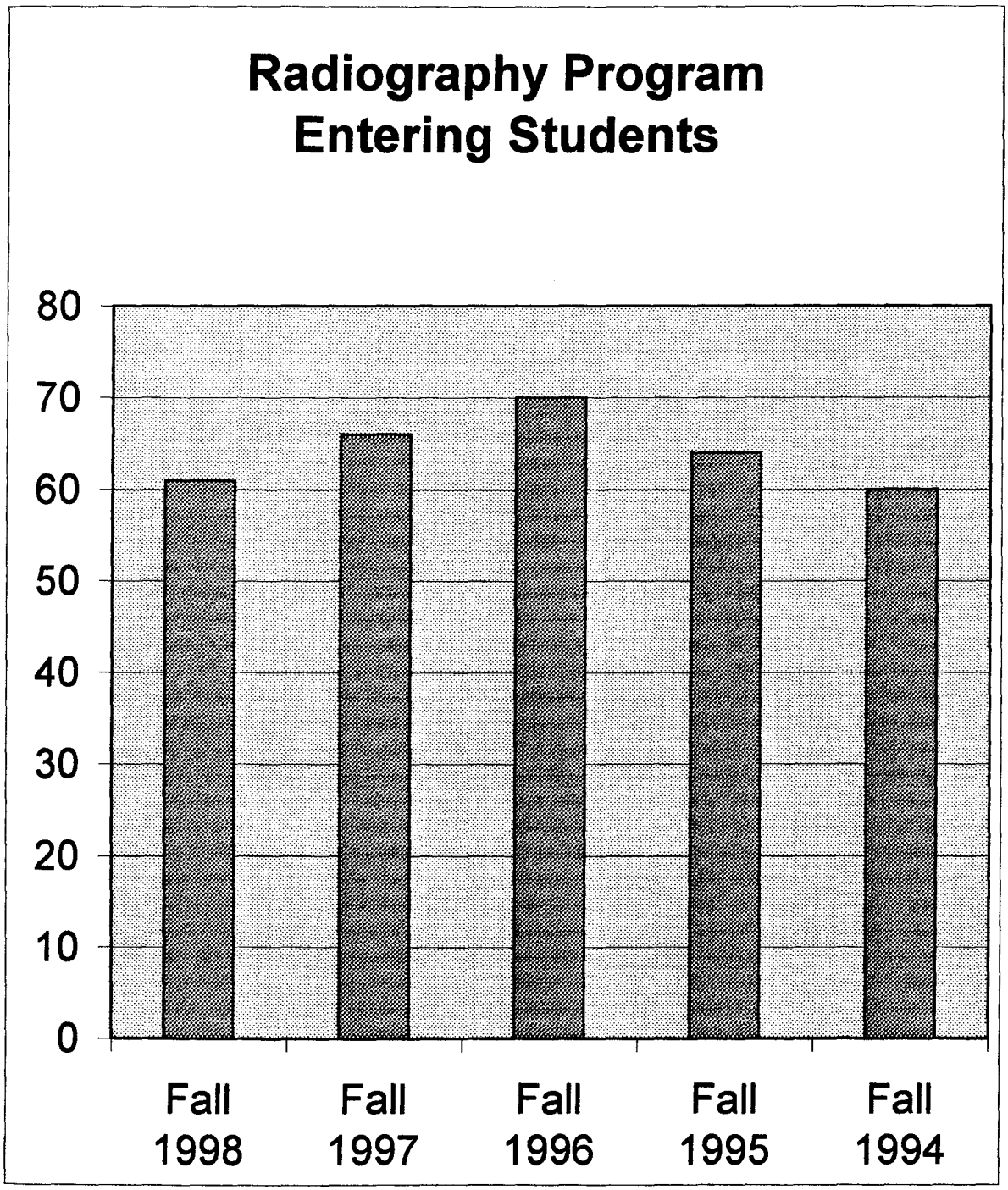
E. Finocchio, Leonard and Christopher Johnson, "Core Curriculum in Allied Health Education." Pew Health Professions Commission. January, 1995.

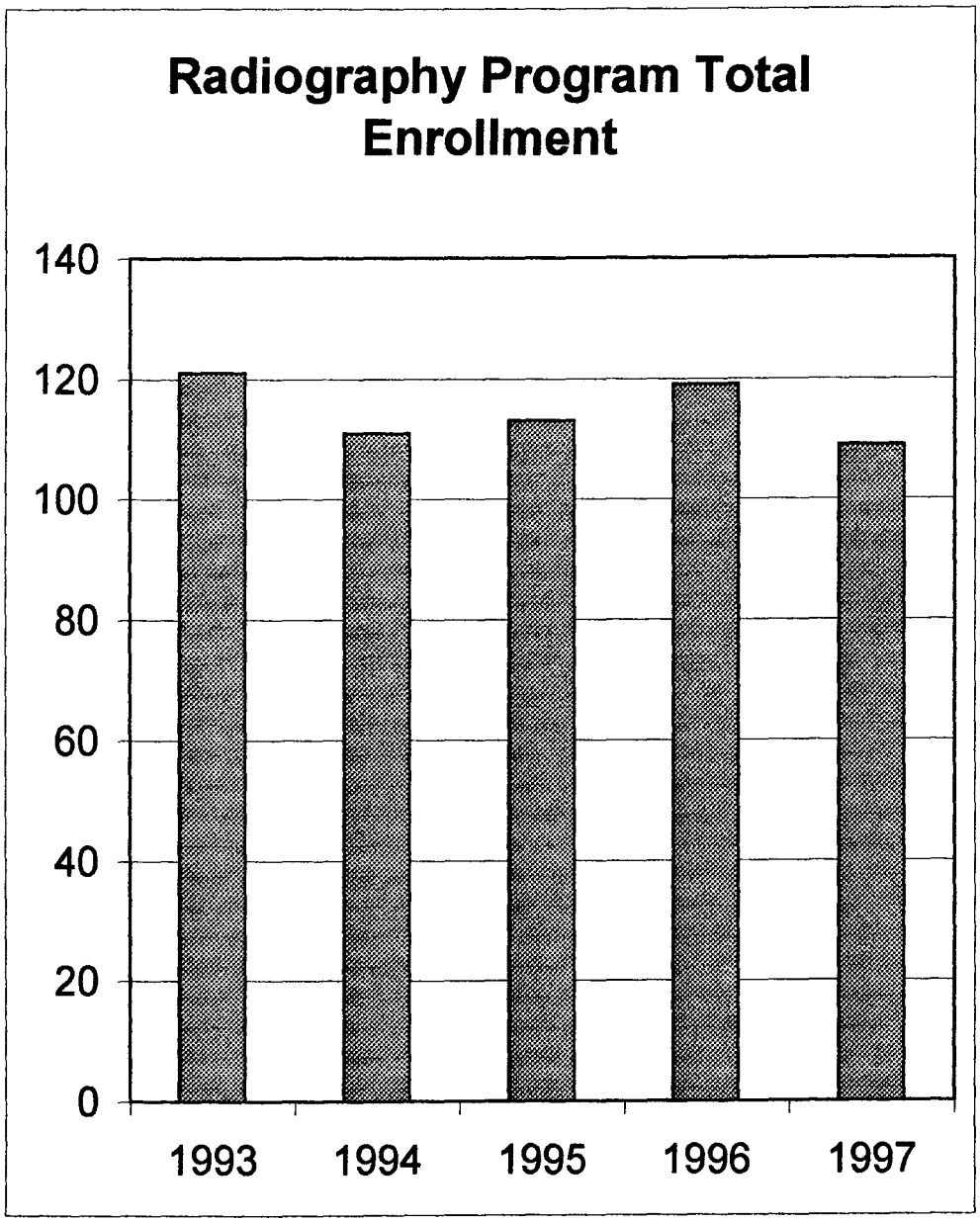
ENROLLMENT TRENDS

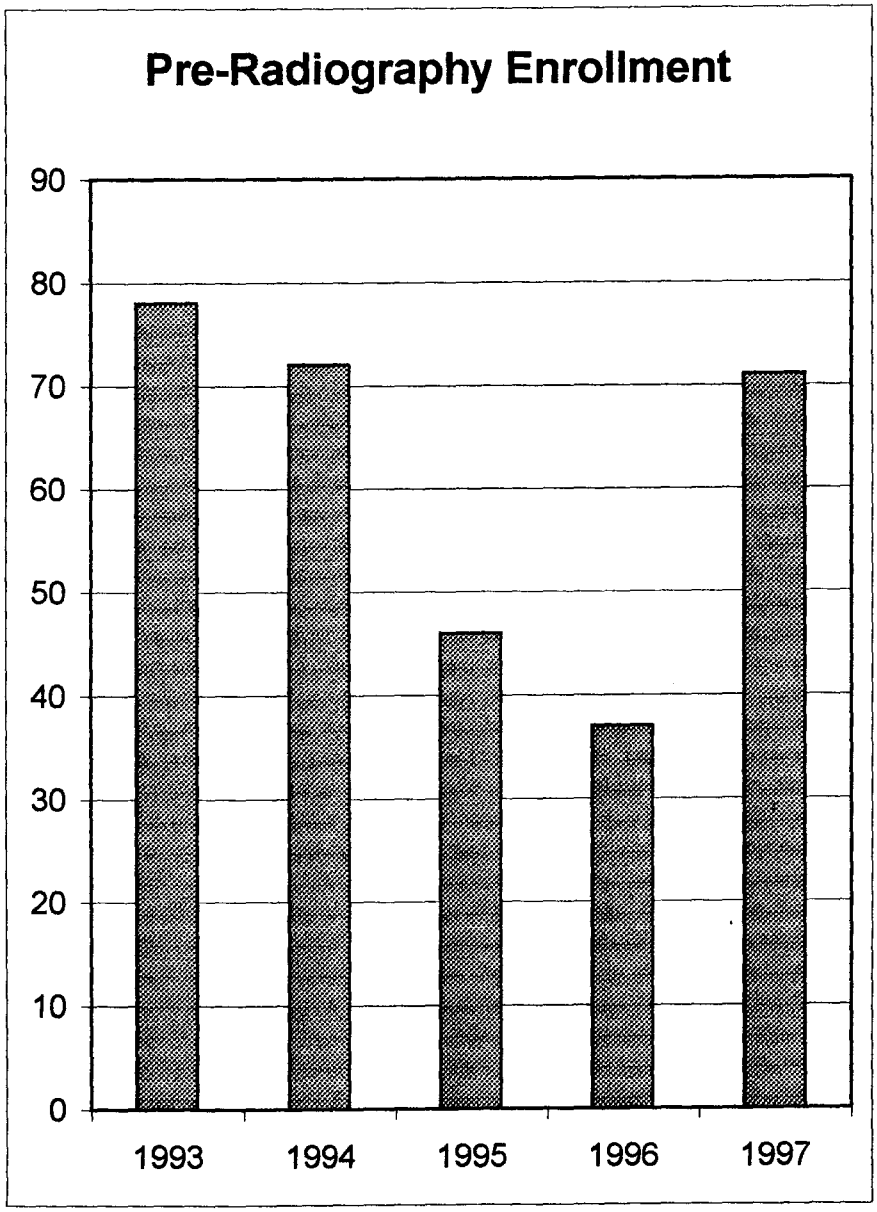
The enrollment in the Radiography Program has been remarkably stable over the past five years. Typically, the enrollment capacity for the program has been 60 incoming students per year. The program has not had a class under that cap. For the fall 1996 and fall 1997 classes, the program enrollment was agreed to increase to 72 students. This increase was a temporary measure to accommodate the students on a two-year waiting list. In the fall 1998, the program returned to its original quota of 60 students per year.

Year	Number of Students Entering Program*	Total Number of Students in Program**	Number of Students in Pre-Radiography**
1993	60	121	78
1994	60	111	72
1995	64	113	46
1996	70***	119	37
1997	66***	109	71
1998	61	****	****

* Data from the seven-day count
** Data from the Administrative Program Review form
*** 1996 and 1997 class capacity was raised to 72
**** Data is not available at this time


Radiography Program
Entering Students
80
70
60
50
40
30
20
10
0
Fall 1998
Fall 1997
Fall 1996
Fall 1995
Fall 1994


Radiography Program Total Enrollment
140
120
100
80
60
40
20
0
1993
1994
1995
1996
1997


Pre-Radiography Enrollment
90
80
70
60
50
40
30
20
10
0
1993
1994
1995
1996
1997

ADMINISTRATIVE PROGRAM REVIEW

Program/Department: Radiography/Hospital Related

Date Submitted: October 21, 1997 **Dean:** Isabel J. Barnes

Please provide the following information:

Enrollment/Personnel

	Fall 1993	Fall 1994	Fall 1995	Fall 1996	Fall 1997
Tenure Track FTE	2	2	2	2	3
Overload/Supplemental FTEF	1.27	1	1	1.06	N/A
Adjunct/Clinical FTEF (unpaid)	52	52	52	52	52
Enrollment on-campus total*	121	111	113	119	109
Freshman	16	15	13	18	29
Sophomore	63	38	43	34	30
Junior	30	46	37	36	22
Senior	12	12	20	11	15
Pre-radiography	78	72	46	37	71
TBD				20	13
Enrollment off-campus*	0	0	0	0	0

*Use official count (7-day count for semesters, 5-day count for quarters).

Financial

Expenditures*	FY93	FY94	FY95	FY96	FY97
Supply & Expense	$23,930	$15,957	$18,955	$17,173	$16,926
Equipment**					
Gifts & Grants	105	197	5,224	331	3

*Use end of fiscal year expenditures.
**Does not include Voc-Ed and General Fund dollars.

Other

	AY 92-93**	AY93-94	AY 94-95	AY 95-96	AY 96-97
Number of Graduates * - Total	47	50	48	46	53
- On campus	47	50	48	46	53
- Off campus	0	0	0	0	0
Placement of Graduates	96%	94%	60%	100%	N/A
Average Salary	$21,404	$22,509	$23,315	$25,000	N/A
Productivity - Academic Year Average	1,294	729	746	740	763
- Summer	579	0	302	423	356
Summer Enrollment	111	95	95	98	99

* Use total for academic year (F,W, S)
**Represents productivity on quarter system.

I. **Strengths**

A. Faculty – There is good support from clinical faculty. Productivity is high in this program.
B. Students – Numbers are strong in professional part of the program.
C. Curriculum – Students are well prepared for internship. Program is moving to placement for internship which should alleviate some of the problems with matching. Clinical policies and procedures are being updated.
D. Facilities – Not applicable
E. Budget – S&E funds are adequate to support instructional activities. Equipment for program has been purchased with vocational education funds.

II. **Concerns**

A. Faculty – Strong teamwork within the department should be developed.
B. Students – Demand for program appears to be strong but should be monitored to assure that professional courses are filled.
C. Curriculum – Not applicable.
D. Facilities – Not applicable.
F. Budget – Not applicable

III. **Future Goals (including time frame)**

A. Faculty – Not applicable.
B. Students – Outcomes assessment data should be collected starting Fall 1997.
C. Curriculum – Exploration of a possible degree program to prepare multi-competent imaging specialists should be complete by May 1998.
D. Facilities – Not applicable.
E. Budget – Develop a five-year plan for equipment upgrades and share with the dean by March 1998 so external sources of funding can be sought.
F. Other – Complete self-study in preparation for site visit in April 1998.

III. **Recommendations**

A. Faculty – Faculty need to find creative ways to maintain their clinical skills.
B. Students – Continue to monitor attrition and determine if need for additional supportive services.
C. Curriculum - Not applicable.
D. Facilities – Not applicable.
E. Budget – Not applicable.

IV. **Progress toward 1996-97 Goals**

Tenure track faculty member was hired in January 1997 bringing stability to clinical coordination. Advisory committee met for first time in early September. PRP/APRC review completed.

FERRIS STATE UNIVERSITY

Ranked Listing of Student Credit Hours (SCH) /
Full Time Equated Faculty (FTEF), Aggregated by Course Prefix
Fall + Winter Semesters 1997-1998

Course Description	Course Prefix	Student Credit Hours/ Full Time Equated Faculty
Health Education	HLTH	1,125.75
History	HIST	932.16
Physical Education	PHED	884.17
Psychology	PSYC	846.53
Computer Science	CPSC	840.00
Economics	ECON	775.43
Humanities	HUMN	771.25
Sociology	SOCY	744.55
Geography	GEOG	727.48
Radiography	RADI	725.96
Chemistry	CHEM	710.07
Physics	PHYS	697.50
Anthropology	ANTH	694.16

PROGRAM STRENGTHS

The faculty of the program feels that the following are some of the strengths of the program:

1) The dedication, experience, and expertise of the faculty.

2) The number and diversity of clinical sites which give the students a wide variety of options and experiences in the internship portion of the program.

3) The motivation and dedication of the Adjunct Clinical Instructors.

4) The students graduate with a high degree of employability skills.

5) The quality and utility of radiographic equipment in the laboratory.

6) The availability of state-of-the-art computers, audio-visual equipment, and other multimedia resources.

7) The increased communication and teamwork among program faculty.

8) The cost-effectiveness of the program.

9) The substantial progress made in the development of competency and outcomes based instruction.

10) The development and implementation of a comprehensive program evaluation process.

PROGRAM WEAKNESSES

The faculty has determined that the following areas need to be improved in the program:

1) The faculty needs to be constantly updating their professional skills.

2) The program's structure (i.e. one-year on-campus and one year off). It is felt that an simultaneous integration of classroom knowledge and clinical application would be a positive factor in student learning.

3) The incoming student's prerequisite skill level in certain areas.

4) A smaller class size would be more conducive to student / teacher communication.

5) The lack of uniformity of clinical education while respecting the unique differences in protocol.

6) The need for immediate and comprehensive curriculum review and revision.

7) The lower than national average registry pass rates.

8) The low return rate of some surveys.

9) The lack of an organized database of student (graduate) information.

10) The increased need for effective program and University job placement services.

RECOMMENDATIONS

1) The major recommendation that has come out of this process is the review and revision of the current curriculum of the program. This process should begin immediately and a plan of action should be completed and submitted by the end of the winter semester 1999. The new curriculum could then be implemented by the fall of 2000, which matches the college's timeline for implementation of the core curriculum.

2) It is recommended that a full-time laboratory assistant be hired. by using the assistant as the second person in the labs, it would allow the present faculty to spend more of their time teaching needed courses, developing new programs and initiatives, engaging in scholastic research, and renewing clinical skills. This will be especially critical when the new curriculum is designed.

3) It is recommended that a Student Handbook needs to be developed to advertise and strengthen the program's policies and procedures.

4) It is recommended that the construction of the program be explored and redesigned if necessary.

5) It is recommended that the program develops and implements a certificate program in ultrasonography. (Note: the concept of this program has been approved and it is in its final stages of development).

6) It is recommended that an analysis be done on the feasibility of beginning a Bachelor of Science degree program in radiography at Ferris State University. If this analysis should turn out positively, it is recommended that a BS degree program be developed in a timely manner.

Appendix A

Faculty Vita

Robert T. Holihan Instructor/Program Director

How Many Years with This Program: 18 years

Education	Year	Degree	Certification
Ferris State University, Radiography	1972-1974	AAS	RT(R)(ARRT)
Ferris State University, Allied Health Education	1975-1976	BS	
Western Michigan University, Masters in Public Administration	1985	No Degree Conferred	

Prior Appointments and Titles

Mecosta County General Hospital, Big Rapids, Mi	Radiographer 1975-1979/ 1990
Munson Medical Center, Traverse City, Mi	Radiographer /ACI
St Mary's Hospital	Intern

Publications/Presentations
"A Radiographers Review of Bacteriology" – MSRT District Two Monthly Meeting Oct 1997 ASRT Approved

"Radiographic Artifacts Caused by Proprietary (O.T.C) Gastrointestinal Presentation", Norwood R. Neuman, .V.M & Robert T. Holihan, BS RT(R) EDU. AH

Radiation Safety and Biology Lectures, Naval Reserve, 1974-1996 Annual Lecture
Radiographic Procedures, US Naval Reserve Hospital Corpsman, 1980-1996 Annual Lecture

Duties/Responsibilities:
Program Director
Academic Senator
Advisor to 65 to 75 Students
Chairperson – CAHS Resource Committee
Instructor – Radi 120 (Introduction To Radiography), Radi 140 (Radiographic Anatomy/Positioning)

Continuing Education and Presentations

Robert T. Holihan BS, RT(R)

ORGANIZATION NAME	TOPIC	DATE
Lakeshore Society of Radiologic Technologists	Radiographic Pathology of the Chest	1/27/95
Lakeshore Society of Radiologic Technologists	Wrist Arthrograph...Diagnosis & Repair	1/30/95
American Society of Radiology Technologists	Wrist Arthrograph--Diag & Surgical Repair	1/30/95
American Society of Radiology Technologists	Handling Student Discipline Problems	3/22/95
American Society of Radiology Technologists	Take This Job and Love It	3/22/95
American Society of Radiology Technologists	The Bizarre Side of Radiology	3/23/95
American Society of Radiology Technologists	ARRT Content Specifications	3/23/95
American Society of Radiology Technologists	Teaching Methodologies	3/24/95
American Society of Radiology Technologists	How to Teach Pathology	3/24/95
American Society of Radiology Technologists	JRCERT Accreditation Update	3/24/95
American Society of Radiology Technologists	Are we Preparing Students for the 21st Century	3/24/95
American Society of Radiology Technologists	CT & MRI--Anatomical & Pathological Correlation	3/25/95
American Society of Radiology Technologists	Open Forum for Educators	3/25/95
American Society of Radiology Technologists	Managing the Manager	3/25/95
American Society of Radiology Technologists	Electronic Imaging	3/25/95
American Society of Radiology Technologists	SPRE--Dept of EDU & JRCERT	3/25/95
Joint Review Committee on Education in Rad. Technology	Accreditation Seminar	13-Apr-96
Association of Educators in Radiological Sciences, Inc.	Principals of Clinical Instruction for Educators	July 20-22,95
Association of Educators in Radiological Sciences, Inc.	Principals of Clinical Instruction for Educators	July 20-22,95
American Society of Radiology Technologists	Evidence of Continuing Education	July 94-95
Ferris State College	Diagnostic Medical Sonography	March-Oct '82

Presentation Outside the University

Michigan Society of Radiologic Technologists	Radiographers Review of Bacterial Infection	10/28/96

University Presentation

Radiography Day - For the On-Campus Radiography Student		May-96

CURRICULUM VITAE
Annual Revision/Additions

Biographical Data:

Name: Joel R. Rescoe, BS, RT(R) **DATE:** August, 1998
Current Rank: Assistant Professor
Program of Major Responsibility: Radiography

I. Formal Education

Highest Degree Earned: Baccalaureate
Major: Health Studies
Year Granted: 1981
Granting Institution: Western Michigan University
Additional Degrees: AAS - Radiography, Ferris State University, 1977

Additional Course Work and Credits

Currently pursuing Master's degree at Ferris State University, Career Technical Education, Administrative Track. Only EDUC 512, Research Field Study (2 credits) remains outstanding.

Courses Completed Awarding Credit:

Title		Credits
EDUC 500	Foundation and Organization of Career and	
EDUC 506	Curriculum Design & Construction in Technical Education	3
EDUC 510	Evaluation in Career & Technical Education	3
EDUC 511	Principles of Educational Research	3
EDUC 521	Leadership and Organizational Dynamics	2
EDUC 575	Adults in Career and Technical Education Programs	3
EDUC 591	Advanced Career and Technical Internship	6
EDUC 600	Administration of Career & Technical Education Programs	2
EDUC 601	Supervision and Instructional Improvement	2
EDUC 605	Community Relations for Career/Technical Education	2
EDUC 625	Methods of School Improvement	2
EDUC 635	School Personnel Management	2

II. Professional Credentials

1. Registered Radiographer (Radiography) ARRT, 1998
   99% scaled score. Currently good standing.
2. Member - ASRT
3. Member - MSRT

III. Work Experience (Other than teaching):

PLACE	JOB DESCRIPTION	YEAR
Butterworth Hospital Grand Rapids, MI	Staff Radiographer Unit Supervisor Quality Assurance Coordinator Assistant Clinical Instructor	1977-81
U.S. Gypsum Co. Tawas City, MI	Quality Assurance Technician	1971-77
Ferris State University Big Rapids, MI	Student Orientation Leader	1977

IV. Continuing Education

NAME OF PROGRAM	INSTITUTION	CERTIFICATE /CEU	YEAR
Supervisory Skills Training for Quality Improvement (3 day session)	FSU	Yes	1998
Web CT Seminar: Implementing the Web into the Curriculum	FSU	No	1998
Instructional Strategies	FSU	No	1996
Teambuilding/Coaching for Managers	FSU	No	1995
Clinical Instructor's Workshop	Mayo Clinic Phoenix, AZ	Yes	1995
Critical & Creative Thinking Workshop	Sonoma State Univ. Chicago, IL	Yes	1993
Creative Multimedia Instruct. Workshop	E. Lansing, MI	No	1991
Radiation Devices Orientation	FSU	Yes	1987
Professional Dev. Courses	FSU	Yes	1982-98
M.S.R.T.* Annual Conventions	Various locations-MI	Yes	1975-97
R.S.N.A.**	R.S.N.A. Chicago, IL	No	1993-94

* Michigan Society of Radiologic Technologists. Have attended every annual convention with a few exceptions within the years specified. Participated in convention seminars specific to the radiographic or education profession too numerous to list.

** Radiological Society of North America. Preeminent annual convention, global in scope, that includes gamut of equipment, procedures and personnel involved in diagnostic/ therapeutic medical imaging.

V. Non-Contractual Professional and Community Contributions

Academic Year 1996-97

1. Participant in Academic Program Review process for the Ferris Radiography Program. This extensive internal self study required surveying, data collection, and analysis as well as report publication. My major responsibility involved assessing program student and graduate input and compilation of this report section.

2. Participant in Registry Review Seminar for soon to be graduates. Reviewed specific topic: "Radiography of the Head and Related Procedures".

3. Project leader and mentor: Young Women in Science - Cross Age Research Teams. This was an extensive NSP sponsored scientific research project with the purpose of promoting young women's (grades 5-8) interest in science, and familiarity with methods of scientific inquiry. Topic: The Effects of Ultraviolet Radiation Upon Plant Growth and Other Living Things.

4. Development of Instructional Web Site for my courses. The purpose is to convey current information regarding courses or content (instruction) to students in a timely manner, and to encourage the use of innovative emerging learning or communication technologies. Web Site Address: http://www.ferris.edu/htmls/academics/courseofferings/rescoejoel/homepage.htm

5. Supervising instructor for several learners conducting independent research or special studies. Course RADI 297 - Special Studies in Radiography, variable college credit. Representative projects include "An Analysis of Correlation Between the Patient's Education, Social Class, and Knowledge of Radiology".

6. Directed teaching mentor for student in Allied Health Education. Assisted the student in the application of didactic learning to Radiography program courses. Student name: Ms. Tammy Cingano.

7. Participant/Presenter in Eco-Camp 97, a summer school program for elementary school students. My area of responsibility included ecological awareness and preservation, earth sciences, paleontology, orienteering/map interpretation and design, and nature survival skills.

8. Presented "Careers and Unique Aspects of Biology from a Medical Perspective" to fifth grade students at Brookside Elementary School, Big Rapids, MI.

Academic Year 1997-98

9. Presented "Careers and Unique Aspects of Biology from a Medical Perspective" to third grade students at Brookside Elementary School, Big Rapids, MI, and first and second grade students at Eastwood Elementary School.

10. Presenter/Mentor in Project Earth Program, Summer session. Similar in scope to item #7.

11. Presenter, Ferris State University Registry Review Seminar, Summer, 1998.

12. Girls major softball coach, Big Rapids Little League, 1998 season.

VI. Teaching Experience (Ferris and other):

Total Years: 18

Years (full-time) Employed at Ferris: 17

Current contractual responsibilities (1998-99):

Course Instruction: 23 contact hours/week
Advise 60 students
Member, CAHS Planning Committee, 1998
Member, Quality Improvement 2000 & Steering Committee – University Scope, 1998
APRC Participant, 1998
Program Accreditation Participant, 1998

James E. Mayhew, R.T.(R)

20610 Ross Parkway ♦ Big Rapids, Michigan 49307 ♦ (616) 796-8648

CURRICULUM VITAE

EDUCATION:

Master of Science in Career and Technical Education
Ferris State University, Big Rapids, Michigan
April, 1997 to Present

Master of Science in Health Care Administration
University of Maryland, College Park, Maryland
December, 1995 to January, 1997

Bachelor of Science in Health Care Administration
Columbia Union College, Takoma Park, Maryland
Graduated Magna Cum Laude: May, 1993

Associate of Applied Science in Radiologic Technology
University of Cincinnati, Cincinnati, Ohio
Graduated Magna Cum Laude : August, 1987

EXPERIENCE :

Clinical Coordinator, Ferris State University, Big Rapids, Michigan
January, 1997 to Present

- ◊ Coordinate clinical activities at 20 internship sites across the state
- ◊ Develop, teach, and evaluate Clinical Education and Clinical Practicum courses
- ◊ Organize and oversee Adjunct Clinical Instructors

Program Director, Washington Adventist Hospital School of Radiography, Takoma Park, Maryland
December, 1991 to January, 1997

- ◊ Oversaw complete operation of Radiography Program
- ◊ Taught 10 classes in Radiography
- ◊ Planned and implemented curricula
- ◊ Managed staff of Clinical Director, three clinical associates and clerical staff

Clinical Director, Washington Adventist Hospital School of Radiography, Takoma Park, Maryland
September, 1989 to December, 1991

- ◊ Taught 10 to 12 classes each year
- ◊ Organized and implemented clinical curriculum
- ◊ Created and employed student clinical evaluations

EXPERIENCE continued

Computed Tomography Technologist, Washington Adventist Hospital, Takoma Park, Maryland
June, 1989 to November, 1991 (part-time)

◊ Gained proficiency in Computed Tomography

Special Procedures Technologist, Washington Adventist Hospital, Takoma Park, Maryland
May, 1989 to September, 1989

◊ Gained proficiency in Angiography and Special Procedures

Diagnostic Radiologic Technologist, Washington Adventist Hospital, Takoma Park, Maryland
October, 1987 to May, 1989

◊ Gained proficiency in diagnostic radiography, tomography, fluoroscopy and xeroradiography

Student Technologist, University of Cincinnati Hospital, Cincinnati, Ohio
June, 1986 to October, 1987

◊ Acquired the knowledge and experience to become a Registered Technologist

PUBLICATIONS EDITED:

Computer Assisted Instruction for Medical Imaging Sciences, Educational Software Concepts, Inc.

PROFESSIONAL SOCIETIES / CERTIFICATES:

The American Registry of Radiologic Technologists

◊ Certificate Number 220246

State of Maryland, Department of Health and Mental Hygiene

◊ License Number R01012

Michigan Society of Radiologic Technologists, 1997 to present

Maryland Society of Radiologic Technologists, 1989 to Present

◊ Central District President - 1991 to 1992
◊ Legislative Committee Chairperson - 1991
◊ Continuing Education Committee Member - 1991

Association of Educators in Radiologic Sciences, 1987 to Present

International Society of Radiologic Technology, 1989 to Present

Ohio Society of Radiologic Technologists, 1985 to 1987

CONTINUING EDUCATION CREDITS
Jim Mayhew April 1995 to April 1997

DATE	TITLE	CEU's	Organization	Category	ID #
6/16/95	Anaphylaxis	0.5	MSRT	B	
6/16/95	Pneumonia	0.5	MSRT	B	
10/23/95	TB and Infection Control	1.0	MSRT	A	MD 95086
11/2/95	Radiologic Diagnosis of Pancreatitis	0.5	MSRT	B	
11/2/95	Esophageal Varices: Radiologic Investigation and Interaction	0.5	MSRT	B	
11/3/95	MR Imaging of Macroadenomas	1.0	ASRT	A	DR 89
11/3/95	Monoclonal Antibodies: The Promise and the Reality	3.5	ASRT	A	DR 90
11/11/95	Enhancing Skills for the Practicing Radiographer	8.0	ASRT	A	WI 95010
11/14/95	Cardiac Cath	1.0	MSRT	A	MD 95090
11/30/95	Teleradiology: Practice of Radiology Enters Cyberspace	2.0	ASRT	A	DR 91
12/6/95	Radiology's Role in Diagnosis of AIDS-Related Pathologies	0.5	ASRT	A	DR 87
1/26/96	The Americans with Disabilities Act of 1990	0.5	MSRT	B	
3/7/96	Benign Prostatic Hyperplasia	0.5	MSRT	B	
3/7/96	Teleradiography	0.5	MSRT	B	
4/3/96	MRI's Role in Assessing & Managing Breast Disease	2.5	ASRT	A	DR 95
4/13/96	Love Affair with your Job: A Technical Approach	1.0	MSRT	A	MD 604001
4/13/96	Boning up on Osteoporosis	1.0	MSRT	A	MD 604002
4/13/96	Management of Lumbar Spine Diagnosis	1.0	MSRT	A	MD 604003
4/13/96	Cardiovascular Technology	1.0	MSRT	A	MD 604004
4/13/96	A Surgeon's Interpretation of Trauma Radiology	1.0	MSRT	A	MD 604006
4/13/96	Radiology of the Slipped Epiphysis	1.0	MSRT	A	MD 604007

4/13/96	An Abnormal Mammogram	1.0	MSRT	A	MD 604009
5/22/96	Radioactive Seeding	1.0	MSRT	A	MD 6057
7/25/96	Resurgence of TB & Implications for Radiology	2.5	ASRT	A	DR96
10/23/96	Epidemiology, Diagnosis and Treatment of Prostate Cancer	3.5	ASRT	A	DR 601
11/20/96	The Role of Stereoscopic Breast Bx in Dx of Breast Ca	2.0	ASRT	A	DR602
1/27/97	Radiographic Pathology of the Chest	1.5	ASRT	A	MI7010
1/29/97	Trauma Radiography	1.0	ASRT	A	NM940403
1/29/97	Skull & Facial Bone Radiography	1.0	ASRT	A	NM95003
2/5/97	Medical Imag of Trauma: Upper Cervical Spine	2.0	ASRT	A	DR700
4/16/97	Mammo Eval of Postsurgical/ Irradiated Breast	2.0	ASRT	A	DR701
4/16/97	Early Detection Techniques in Breast Cancer Management	2.0	ASRT	A	DR702

TOTAL (all categories)	48.5
TOTAL (category A)	45.0

CONTINUING EDUCATION CREDITS
Jim Mayhew May 1997 to April 1999

DATE	TITLE	CEU's	Organization	Category	ID #
6/5/97	Defecation Disorders & the Role of Defecography	2.5	ASRT	A	DR703
8/10/97	Site Visitor Workshop	9.5	ASRT	A	II 7001
8/25/97	Radiographic Imaging of Small Bowel Disease	1.5	ASRT	A	DR704
1/12/98	Hepatic CT: Review of Optimal Scanning Techs	1.0	ASRT	A	DR706
1/13/98	Breast Ca in Men & Mammo of Male Breast	1.5	ASRT	A	DR705
4/30/98	Coping with Increasingly Complex Radiation Control Regulations	2.0	ASRT	A	MIX0008031
4/30/98	Creative Aspects of Critical Thinking	2.0	ASRT	A	MIX0008032
4/30/98	Computed Radiography Systems	1.0	ASRT	A	MIX0008033
4/30/98	Enhancing Your Role in Patient Assessment	1.0	ASRT	A	MIX0008034
4/30/98	Basic Concepts of MRI	1.5	ASRT	A	MIX0008035
4/30/98	Preparing for Standard Eleven/ Program Effectiveness	1.5	ASRT	A	MIX0008036
TOTAL (all categories)		25.0			
TOTAL (category A)		25.0			