MEMORANDUM

DATE: November 21, 2002

TO: Academic Senate

FROM: Academic Program Review Council

RE: Recommendations for:
Bachelor of Science Degree in Nuclear Medicine Technology
Associate in Applied Science Degree in Nuclear Medicine Technology

CC: Sheila Squicciarini, Julian Easter, Stephen Perialas, Laurie Chesley, Thomas Oldfield, Barbara Chapman

DESCRIPTION OF PROGRAMS:

BS Degree in Nuclear Medicine Technology
Accredited by the Joint Review Committee on Educational Programs in Nuclear Medicine Technology

Option 1:
Entry from High School:

Accredited by the Joint Review Committee on Educational Programs in Nuclear Medicine Technology, the bachelor of science degree at Ferris State University provides graduates of an associate in applied science degree in nuclear medicine technology an opportunity to enhance their professional skills. The graduates of this program are well prepared to work in the field of nuclear medicine technology.

Two options are available for entry into the bachelor of science degree program in nuclear medicine technology.

Option 1 is for the high school graduate or college transfer student wishing to enter the four-year (nine semester) program. The first three semesters are spent on the Big Rapids campus. Coursework includes anatomy and physiology, chemistry, and nuclear medicine theory and practice, as well as general education courses. The next two semesters are spent in a hospital setting with emphasis on the clinical application of theory. Upon successful completion of the first five semesters, the students will receive an associate of applied science degree in nuclear medicine technology, and be eligible to take the national certification examination.

Option 2 is for the graduate of an accredited program with an associate in applied science degree in nuclear medicine technology.

During the final two years of the program, students will complete four semesters that combine general education and specialized nuclear medicine technology courses with clinical training. The first three of these semesters are spent on the Big Rapids campus. Coursework includes advanced imaging techniques, nuclear cardiology, management and leadership, and science courses in addition to general education courses. Students spend the last semester of the program at an internship site that emphasizes their area of interest within the field of nuclear medicine technology.

In order to graduate, a student must maintain a 2.0 cumulative GPA and a letter grade of C or better in CHEM 214, MATH 120, 300+ science course, ENGL 321, HCSA 335, EHSM 315, and all courses with a prefix of NUCM, as well as CAHS core requirements. Transfer students will also be required to complete ENGL 150, ENGL 250, CCHS 101, CCHS 102, and CCHS 103 with a letter grade of C or better. Graduates must also meet all Ferris State University requirements as stated in the catalog.

To assure students of quality technical training in both classroom instruction and clinical practice, enrollment is limited. Students who meet the programs admission criteria are accepted by priority date of application.

Prior to the clinical internship, the student must provide proof of current CPR certification, recent (within one year) negative TB test results, health insurance, and several vaccinations including Hepatitis B, or proof of antibody titer. Please contact the program coordinator at 1-800-462-8553 for a list of specified immunizations.

If the Hepatitis B vaccine waiver declining the vaccine is signed, it is with the understanding that the waiver may make the student ineligible for placement at internship sites, which will ultimately result in the inability to graduate.

(See Disclaimer in the CAHS General Information section.)

Transfer students will receive an individual evaluation to determine the specific courses needed.

Graduates must complete all general education requirements as outlined in the general education section of this catalog.

Option 2

Graduates of an associate of applied science degree in nuclear medicine technology from an accredited program:
1.2.5 cumulative GPA or higher
2.Letter grade of C or better in MATH 115, BIOL 205, MRIS 102, COMM 105 OR COMM 221, and all courses with the prefix of NUCM or their equivalents. Must be eligible to take, or have successfully passed, the national certifying examination for registry in nuclear medicine technology.

AAS Degree in Nuclear Medicine Technology

Accredited by the Joint Review Committee on Educational Programs and Nuclear Medicine Technology

Accredited by the Joint Review Committee on Educational Programs in Nuclear Medicine Technology, the five semester program combines general education and specialized courses with clinical training.

The first three semesters are spent on the Big Rapids campus. Instruction includes human anatomy and physiology, radiation and nuclear physics, and nuclear medicine theory and methods, in addition to general education courses.

Students spend the next two semesters in a hospital setting with emphasis on the clinical application of theory.

The nuclear medicine technology program prepares men and women for careers in the diagnostic imaging profession.

The nuclear medicine technologist is a trained professional using radioactive pharmaceuticals for diagnostic, therapeutic, and investigative applications in medicine.

Technologists work primarily in hospitals and clinics with duties ranging from assessing a patients thyroid function to storage, inventory, and control of radioactive material.

Graduates of this program are well prepared to work in the field of nuclear medicine, and are eligible to take the national certifying examination for registry in nuclear medicine technology. Graduates may also enter the bachelors degree program in nuclear medicine.

High school graduates entering the program must have at least a 3.0 GPA, a math ACT score of 19, and a one year B average or better in chemistry. If the requirements are not met at the high school level, they must be met at the college level prior to entry into the professional sequence.

Transfer college students must have a 2.5 GPA and a C or better in MATH 110 or the equivalent, and in one semester of chemistry with a lab component.

Students must be 18 years of age by the second semester of the year of entry into the program. To assure students of quality technical training in both classroom/lab instruction and clinical practice, enrollment is limited. Students who meet the programs admission criteria are accepted by priority date of application. It is essential to apply for admission at the earliest possible date.

In order to graduate, a student must maintain a 2.0 cumulative GPA and a "C" or better in MATH 115, CHEM 121, BIOL 205, ENGL 150, ENGL 250, MRIS 102, CCHS 101, CCHS 102, CCHS 103, COMM 105 or COMM 221, NUCM 120, NUCM 125, NUCM 135, NUCM 140, NUCM 291, and NUCM 292. Graduates must also meet all Ferris State University requirements as stated in the catalog.

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COST INFORMATION:

According to the 1999-2000 report from institutional research:

	Total cost per SCH
BS Degree in Nuclear Medicine Technology	$162.81
AAS Degree in Nuclear Medicine Technology	$175.00
	Total program cost
BS Degree in Nuclear Medicine Technology	$20,351.22
AAS Degree in Nuclear Medicine Technology	$11,550.12

RECOMMENDATIONS:

We recommend that the AAS program be continued.

(1) The programs have a number of important strengths:

- They are central to the mission of Ferris State University.
- They are the only university-based programs in the state.
- These programs have an on-campus laboratory, which enhances the quality of instruction. The equipment in the laboratory is state of the industry.
- The AAS program is one of the largest nationally with respect to enrollment.
- The BS program is one of 12 in the country.
- Both the BS and AAS programs have accreditation through the Joint Review Committee on Educational Programs in Nuclear Medicine Technology. These programs received a full 7-year accreditation at the last site visit.
- The pass rate on national registry exams is over 90%.
- These programs have an excellent working relationship with clinical sites, industry and employers.
- Through the placement of graduates, these programs provide an essential service to the state since there is a severe shortage of nuclear medicine technologists.
- A demand by students exists for the AAS program as is demonstrated by an almost capacity enrollment and a waiting list.
- There is a very high demand for graduates of the program as is evidenced by the almost 100% placement rate of students. Graduates can expect a signing bonus. There is every indication that for the immediate future the demand will increase.
- The median annual salary for nuclear medicine technologists is in excess of $50,000
- The faculty is experienced and well qualified.
- The faculty is very involved in continuing education and consulting activities.

(2) We recommend that the following steps need to be taken to maintain the quality of these programs:

- The position vacancy that continues to exist as a result of a lack of qualified applicants is a significant cause of concern. The administration of the College of Allied Health and the University should review the salary guidelines for this position in order to make the University more competitive in attracting qualified personnel.
- The faculty of the programs and the administration of the College of Allied Health Sciences and the University should continue to plan for long term maintenance and replacement equipment as it ages and becomes outdated.
- The faculty of the programs should make use of the new Advisory Committee as they continue to review the program and make decisions concerning the curriculum.
- The very low enrollment in the BS program is a major cause of concern. Graduates receiving a BS degree do not appear to have a significant advantage over graduates with the AAS degree. The council requests that the program panel prepare a written document in which the rationale for continuing to offer the BS degree is delineated. This document should include a discussion of the implications of not offering of the BS degree on potential recruitment and enrollment of students in the AAS program. The discussion should also include possible alternate approaches to offering the BS degree that do not require offering courses with the NUCM prefix during the fall or winter semester. The feasibility of offering the upper division advanced nuclear medicine courses using

alternative instructional methods such as on-line instruction, week end courses, short term courses in the summer for individuals who are employed in the industry should discussed. Also the possibility of offering certificate programs that could be linked to other existing BS programs should be evaluated. This report must be submitted to the council by October 15, 2003. Based on this report, the council will make a recommendation to the Academic Senate concerning the BS degree.

Criteria Summary for
AAS Degree in Nuclear Medicine Technology
BS Degree in Nuclear Medicine Technology

BS Degree in Nuclear Medicine Technology

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- **CENTRALITY TO FSU MISSION:**

  The nuclear medicine programs produce graduates with the skills necessary to find employment in the health care field, which is central to the FSU mission.

- **UNIQUENESS AND VISIBILITY OF PROGRAM:**

  They are the only university-based programs in the state. These programs have an on-campus laboratory, which is quite unusual. The AAS program is one of the largest nationally with respect to enrollment. The BS program is one of 12 in the country.

- **SERVICE TO STATE, NATION, WORLD:**

  Most nuclear medicine technologists in the state of Michigan are graduates of the Ferris programs. Practitioners in this field are an important component of clinical health care teams.

- **DEMAND BY STUDENTS:**

  The AAS program is at capacity and there is a waiting list. The enrollment in the BS program is very low.

- **DEMAND FOR GRADUATES:**

  A dramatic rise in employment opportunities has occurred due to the opening of cardiac and oncology clinics. Sign on bonuses are routinely offered to AAS graduates. A survey done in 2001 by the Nuclear Technology Certification Board indicates that there are approximately 4000 vacancies in the field.

- **PLACEMENT RATE AND AVERAGE SALARY OF GRADUATES:**

  Both programs have close to 100% placement of graduates. Data from the occupational handbook indicates the median salary in 2000 for nuclear medicine technologists was $44,130. The 2001 Nuclear Technology Certification Board survey suggests that the average salary is over $50,000 per year.

- **SERVICE TO NON-MAJORS:**

  Not a significant feature of these programs.

- **QUALITY OF INSTRUCTION:**

  Both the BS and AAS programs have accreditation through the Joint Review Committee on Educational Programs in Nuclear Medicine Technology. The pass rate on national registry exams is over 90%. Student and graduate surveys rate instruction as excellent.

- **FACILITIES AND EQUIPMENT:**

  The facilities are adequate for the needs of the program. The equipment is state of the industry. Some aging equipment will have to be replaced in the near future.

- **LIBRARY INFORMATION RESOURCES:**

  The library resources are adequate for the needs of the program.

- **COST:**

  According to the 1999-2000 report from institutional research:

	Total cost per SCH
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BS Degree in Nuclear Medicine Technology	$162.81
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FACULTY:

- **QUALIFICATIONS:**

  The faculty member has extensive clinical and research experience

- **PROFESSIONAL AND SCHOLARLY ACTIVITIES:**

  The faculty member is a member of the Board of Directors of the Nuclear Medicine Technology Certification Board and is active in professional organizations.

- **QUANTITY:**

  One full time position is at present unfilled.

- **ADMINISTRATIVE EFFECTIVENESS:**

  The administration appears to be supportive of the program.

MEMORANDUM

DATE: November 21, 2002

TO: Academic Senate

FROM: Academic Program Review Council

RE: General Recommendations for Programs reviewed in the 2002-2003 review cycle

CC: Vice-Presidents Chapman, Oldfield, and Chesley; All Deans

Approximately one year ago 12 panels charged with reviewing a total of 18 programs were formed. These panels were composed of program faculty and friends of the program. The panels collected information, analyzed that information, and wrote thorough and rigorous reports that detailed the status of the programs. These reports also identified needs of the programs. Based upon the written documents submitted to the Academic Program Review Council, the answers to written questions generated by the Council, and discussion with panel members and program administrators, the APRC has generated specific recommendations for each program reviewed. These recommendations have been submitted as separate memos. On behalf of the entire University, the APRC extends its appreciation and gratitude for the work done by the program review panels.

GENERAL RECOMMENDATIONS

The following recommendations are derived from our collective review of the programs and represent our suggestions for addressing concerns that affect more than one program in the University. A review of general recommendations from previous Academic Program Review Council reports reveals that, although progress has been made, some programs still encounter the same or similar difficulties observed in previous years. It is clear many of these problems must be solved at the institutional level. If a similar recommendation was made previously, the years are indicated in parentheses.

THERE SHOULD BE A MORE THOROUGH PROOFREADING OF THE UNIVERSITY CATALOG BEFORE IT IS PUBLISHED.

At the beginning of each recommendation memo, under the section titled program description, a statement concerning each program is reproduced exactly as it appears in the online catalog. Often, the first impression of the University that is gained by prospective students and the general public is obtained through the Catalog. Therefore, it is a matter of concern when there are misspellings and examples of poor use of language in one of the most visible documents of the University.

THE ANNUAL REPORT ON THE CUMULATIVE IMPACT OF ACADEMIC PROGRAM REVIEW RECOMMENDATIONS SHOULD LIST THE RECOMMENDATIONS MADE BY THE COUNCIL AND THE SPECIFIC ADMINISTRATIVE RESPONSE TO THEM.

The Academic Program Review Council would like to thank Vice-President Chapman for providing the Senate and the Council with an Annual Report on the Cumulative Impact of Academic Program Review, which was in the form of a memo dated August 5, 2002. The Council recognizes that it may not be possible for the University to completely address all of the recommendations made by the Council in a calendar year and appreciates the efforts of the administration to follow up on the issues that are raised. The Council notes, however, that some of the actions taken do not directly correspond to the actual recommendations of previous Councils. For the sake of clarity of communication, the Council requests that in future updates, starting with the current review cycle, there be a list of the specific recommendations of the Council and the administrative response to them (2001-2002). There is a precedent for this in the memo from Teshome Abebe, former Provost and Vice-President for Academic Affairs dated July 30, 1996 in which he provided a status report on the progress that had been made concerning the Senate-approved APRC recommendations for programs reviewed in 1995-1996.

OTHER DIVISIONS OF THE UNIVERSITY SHOULD BE REVIEWED WITH RESPECT TO THE QUALITY OF SERVICE THAT THEY PROVIDE TO ACADEMIC PROGRAMS AND THE EDUCATIONAL MISSION OF THE UNIVERSITY. FEED BACK CONCERNING THE OUTCOME OF THESE REVIEWS SHOULD BE SUPPLIED TO THE ACADEMIC SENATE AND THE ACADEMIC PROGRAM REVIEW COUNCIL.

The Council appreciates the decision by the administration to develop a review process for University Advancement and Marketing and the computer consortia. The council would like to point out, however, that the focus of these reviews as described in the memo from Dr. Chapman dated August 5, 2002 does not completely address the concerns of previous Academic Program Review Councils. Hopefully the QI2000+ Committee mentioned in the document will establish a thorough process of review of divisions in the University that support and serve academic programs so that, when problems arise because of policy or implementation of policy, a mechanism will be in place to correct the problems and allow affected programs input in the development of new policies. The purpose of this request is to ultimately improve the quality of academic programs (2000-2001, 2001-2002).

THE UNIVERSITY SHOULD REVIEW THE POLICIES ASSOCIATED WITH THE ISSUING OF STUDENT ID CARDS AND THE PROCEDURES FOR ASSIGNING STUDENT BARCODES.

Students still have trouble accessing library databases from off-campus. Barcode numbers needed for database login are not tracked when ID's are issued so students must call the library to have their barcode entered before they can access the databases from off-campus. The FLITE staff has worked diligently to alleviate some of these problems, however, much of the difficulty could be avoided by coordination between Telcommunications and FLITE.

THE UNIVERSITY AND, IN PARTICULAR, THE COLLEGE OF ARTS AND SCIENCES, SHOULD ENSURE THAT AN ADEQUATE NUMBERS OF COURSES, OFFERED IN AN APPROPRIATE FORMAT (12 WEEKS), ARE OFFERED DURING THE SUMMER SEMESTER.

The curricular design in several of the colleges (particularly Allied Health and Business) requires that students build a full load schedule during the summer. While offering courses of varying lengths during the summer may be convenient for faculty, such an arrangement makes it extremely difficult for students to achieve a full load of classes. That in turn may cause the student to choose a course based on the timeframe in which it is offered rather than the its educational value.

THE UNIVERSITY SHOULD REQUIRE THAT THE ADMINISTRATIVE PROGRAM REVIEW FORMS SHOULD BE FILLED OUT ACCURATELY AND COMPLETELY.

The Administrative Program Review documents provided to the council by the program panels varied significantly with respect to their completeness and reliability. In several cases, questions on the form were not answered and data related to enrollment according to class standing and the number of graduates in a given year was not listed. The Council relies heavily on this document in assessing the status and viability of each program.

THE DESIGN AND DISTRIBUTION OF SURVEYS FOR ACADEMIC PROGRAM REVIEW SHOULD BE PROCESSED THROUGH A CENTRAL UNIVERSITY OFFICE WITH INPUT FROM THE PROGRAM REVIEW PANEL.

The academic program review process relies extensively on information gathered through surveys. It is apparent to the council that this type of activity should be coordinated through a central office, which provides services to panels for programs undergoing review. Most program faculty are not trained or experienced in survey methodology. This often results in poorly designed surveys, low response rate, and information of dubious validity. This problem is compounded by the fact that other divisions within the University are sending out different surveys, in many cases to some of the same individuals. It is true that different divisions within the University may be interested in obtaining different kinds of information, however there is certainly a basic core of information that is important to all units within the University. A standardized survey form should be designed and distributed utilizing established survey methodology. This form should allow individual programs or units in the University to ask additional specific questions related to information unique for their needs. The staff of this central office should provide support for follow up procedures to ensure adequate response rates. They should also assist the program review panels in the use of applicable statistical procedures to insure proper interpretation of the data.

THE UNIVERSITY NEEDS TO HAVE A CENTRAL DATABANK THROUGH WHICH ALUMNI AND GRADUATES OF PROGRAMS ARE TRACKED.

Most panels reported that significant numbers of surveys were returned due to an incorrect address. There is no question that in this mobile society it is difficult to keep track of individuals, however, if there is a cooperative approach to collecting data from various sources on campus, it should be possible to increase the reliability of existing databases.

INSTITUTIONAL RESEARCH SHOULD COMPILE THE INFORMATION REQUIRED BY PROGRAM FACULTY AND ADMINISTRATORS FOR THE PROGRAMS UNDERGOING THE ACADEMIC PROGRAM REVIEW PROCESS.

The document titled Academic Program Review: A Guide for Participants lists some specific types of information that are required for the review process. Currently, the seeking out and collecting of relevant programmatic information on an individual basis is an inefficient process and is an inordinately consuming use of program faculty and administrator's time. The previous Academic Program Review Council did meet with a representative from Institutional Research last spring to discuss their methods of data collection and how they arrived at their interpretation of the data. At that time, this individual expressed a willingness to work with the Panels in obtaining the information that they need. The current Academic Program Council should develop a specific list of the information that is required and communicate this to the staff in Institutional Research. The council requests administrative approval for this expansion of duties by the staff of Institutional Research (2001-2002).

THE UNIVERSITY SHOULD CONTINUE TO EXPLORE WAYS IN WHICH IT CAN HELP PROGRAMS MAINTAIN AND ACQUIRE NEW EQUIPMENT AS THE NEEDS OF INDUSTRY CHANGE.

The Council appreciates the response of the administration documented in Dr. Chapman's August 5, 2002 memo to previous recommendations concerning maintenance and acquisition of equipment. The Council also recognizes there is no way that the University can fund all of the equipment requirements of all of the programs at the University. With a few exceptions, most of the programs reviewed this cycle had adequate facilities and equipment. However, concern was expressed by several program panels related to funding for maintenance, replacement of equipment items, and the purchase of new equipment. Updating of computers to handle increasingly sophisticated software continues to be a problem. The University should continue to provide support for the maintenance of equipment and establish funds the upgrading of equipment. The procedures for requesting such funds should be widely communicated throughout the campus. In addition, the University should continue to encourage and support the efforts of faculty and program administrators as they seek off campus sources of equipment and resources. (1995-1996, 1997-1998, 1998-1999, 1999-2000, 2001-2002)

THE UNIVERSITY SHOULD INVEST IN PROGRAM SPECIFIC ENROLLMENT AND RECRUITING EFFORTS:

The current guidelines for the academic program review process require the APRC to evaluate enrollment in programs as a part of the review process. Low enrollment in a program does have a direct impact on program cost and faculty productivity (as defined by the business operations of the University), particularly in programs that are laboratory and technology intense. Low enrollment does not necessarily have a direct relationship to the quality of education that is delivered to students.

As far as the Academic Program Review Council was able to determine, at least with respect to the programs that were reviewed this year, low enrollment levels were unrelated to the quality of instruction, the availability of jobs in the field, the potential salaries of employees in the field, and even the availability of financial aid in the form of scholarships to students. Some of the under-enrolled programs that were reviewed this year have few or no competitors in the state of Michigan and in some cases in the country. The faculty in several

of these under-enrolled programs has made an intensive recruiting effort, which seems to have had only a limited impact on increasing student numbers. On the other hand, new degree initiatives in the College of Education and Human Services and in the College of Arts and Sciences have resulted in programs with rapidly increasing enrollments but limited opportunities in the job market. The difference seems to be the visibility of programs to prospective students.

It has become apparent to the members of the Council, particularly those who have served several years, that allocating a few marketing dollars to a program with enrollment difficulties and creating an attractive brochure does little to increase student numbers. Asking faculty to spend increasingly more time in recruitment efforts is not a particularly productive or effective approach to solving the problem. Typically faculty members have had little, if any, training in marketing techniques, demographic analysis, and brochure design. Most faculty members choose teaching because of their love of their subject area and their desire to share their knowledge with students, not because of an interest in the marketing of their program to prospective students.

If the University is truly committed to its historic mission of preparing students for a career and wishes to continue to serve the state of Michigan by providing graduates who are prepared to work in vital areas of our economy such as heavy industry or health care and yet maintain the fiscal viability of the University, it must address the issues related to the marketing low enrollment programs at an institutional level. It must supplement the efforts of faculty and administrators in programs with low enrollment through the use of institutional resources for focused marketing that increases the visibility of low enrollment programs and increases the awareness on the part of prospective students that many of the programs at Ferris State University lead to career options in vital industries in which high paying jobs are going unfilled.

THE ACADEMIC SENATE SHOULD REVIEW ITS CHARGE TO THE ACADEMIC PROGRAM REVIEW COUNCIL.

The Academic Program Review Council has begun the second round of program review. It is time to review and to reevaluate the criteria that are utilized as the basis for recommendations that are listed in the document Academic Program Review: A Guide for Participants. The academic program review process should focus on the quality of instruction offered in each program. Some of the criteria mentioned previously seem to have a marginal relationship to that goal, at best. For example, the focus on enrollment, productivity, cost of instruction, demand for graduates and the salaries they achieve are certainly of interest and importance to the administration. The question that arises is whether the academic program review process is the appropriate medium to collect and tabulate that data. Perhaps the academic program review process should focus more directly on what skills or competencies are required of graduates, how effectively programs deliver instruction that provides students with those skills and competencies, how the programs assess the skills and competencies of their students and graduates, and what hinders the programs in their attempts to fulfill their responsibilities to their students.

The Academic Program Review Council, 2002-2003

Jack Buss, Arts and Sciences , Chair
Douglas Fonner, Arts and Sciences
Carrie Forbes, Library and Information Services
Michael P Keating, Optometry
Richard Kowalkoski, University College
Jim Mayhew, Allied Health Sciences
Connie L Morcom, Education and Human Services
Norwood "Woody" Neumann, Pharmacy
Dan Skurski, Technology
William Smith, Business
Randy Stein, Technology

Questions to APR Panel
AAS Degree in Nuclear Medicine Technology
BS Degree in Nuclear Medicine Technology

On pages 2 – 7 you list the tasks that your students are expected to master. For each of the general headings listed, identify the major course(s) or component(s) of your curriculum that are designed to develop the ability to perform the task in your graduate.

Imaging Procedures:

1. *Administration*
   NUCM 135, NUCM 291, NUCM 292
2. *Patient Care*
   NUCM 125, NUCM 135, NUCM 291, NUCM 292
3. *Patient Preparation*
   NUCM 125, NUCM 135, NUCM 291, NUCM 292
4. *Imaging Procedures*
   NUCM 120, NUCM 125, NUCM 135, NUCM 291, NUCM 292

Instrumentation:

5. *Scintillation Camera*
   NUCM 120, NUCM 135, NUCM 291, NUCM 292
6. *Scintillation Counters*
   NUCM 120, NUCM 291, NUCM 292
7. *Gas-Filled Detectors*
   NUCM 120, NUCM 291, NUCM 292
8. *Computers*
   NUCM 120, NUCM 291, NUCM 292

Radiation Protection and Radiopharmacy:

9. *Compliance with Regulations*
   NUCM 120, NUCM 125, NUCM 135, NUCM 291, NUCM 292
10. *Protection Procedures*
    NUCM 120, NUCM 125, NUCM 135, NUCM 291, NUCM 292
11. *Radiation Surveys*
    NUCM 120, NUCM 291, NUCM 292
12. *Radiopharmaceutical Laboratory*
    NUCM 125, NUCM 291, NUCM 292
13. *Generator Elution*
    NUCM 125, NUCM 291, NUCM 292
14. *Radiopharmaceutical Compounding*
    NUCM 125, NUCM 291, NUCM 292
15. *Radiopharmaceutical Dispensing*
    NUCM 125, NUCM 135, NUCM 291, NUCM 292
16. *Radiopharmaceutical Administration*
    NUCM 125, NUCM 135, NUCM 291, NUCM 292
17. *Waste Disposal*
    NUCM 120, NUCM 125, NUCM 135, NUCM 291, NUCM 292, CCHS 103

18. Decontamination
NUCM 120, NUCM 291, NUCM 292

Non-Imaging Procedures:

19. Administrative Procedures
NUCM 125, NUCM 291, NUCM 292

20. Patient Preparation
NUCM 125, NUCM 291, NUCM 292

21. Laboratory Equipment
NUCM 125, NUCM 291, NUCM 292

22. Specimen Collection and Handling
NUCM 125, NUCM 135, NUCM 291, NUCM 292, CCHS 103

23. Standard of Controls
NUCM 125, NUCM 291, NUCM 292

24. Counting Equipment
NUCM 120, NUCM 291, NUCM 292

25. Calculations
NUCM 120, NUCM 291, NUCM 292

On pate 7 it is indicated that the program started out as an AAS degree and subsequently expanded to include a 4-year degree. What was the rationale for offering a BS degree? Are there salary or career advantages to the 4-year graduate as opposed to the 2-year graduate? What advantages does the BS in nuclear medicine technology give your students over a BS in some other area such as Health Care Services Administration or Applied Biology?

A. I was not here when the program implemented the BS degree program. I am assuming, however, that industry at that time wanted BS degree prepared graduates to fill supervisory as well as research positions. The profession of nuclear medicine technology was experiencing fast growth during that time period.

B. The BS degree graduate has a definite career advantage over an AAS degree graduate in the areas of supervision, research, sales, applications, and training. All graduates are provided the skills to become entry-level nuclear medicine technologists. The BS degree graduate also has coursework in administration and advanced imaging techniques. AAS degree graduates would generally not be selected as supervisors over a BS degree graduate.

C. The BS Degree in Nuclear Medicine Technology includes courses in advanced instrumentation, cardiac imaging, management and supervision, and communication. These courses provide the graduate with skills required to work in specialty areas of nuclear medicine technology. A degree in Health Care Systems Administration is for the student who has a goal of becoming an administrator, whether in nuclear medicine departments or other health care facilities. A degree in Applied Biology is for the student who wants to enter into the field of research or pursue an advanced degree in medicine. Options for the acquiring a BS degree are discussed with students.

How do the salaries compare between your AAS and BS graduates?

There is virtually no difference between the salaries of entry-level graduates of either degree programs.

Over time, however, the salaries of BS degree graduates are higher. This is due to the BS degree graduates moving into supervision, research, sales, and applications.

Please explain the relationship between the 2-year program and the 4-year program. According to the university catalog students may follow a 2+2 track or directly enter the BS program as a freshman. What is the advantage of the straight 4-year option? Are students able to sit for the registry exams after two years or do they have to wait until graduation?

A. All students must follow a 2 + 2 track. The students complete their AAS degree in Nuclear Medicine Technology and then may continue and obtain their BS degree.
B. Students are able to sit for a registry/certification exam upon successful completion of their AAS degree.

On page 7 a reference is made to a waiting list. Are students on the waiting list because the cap has been reached or because they do not meet the admissions criteria?

Waiting list students have met the eligibility criteria for the program. They are on the waiting list because the program is full. Students designated as "Pre-NMT" students have not met the eligibility criteria or have met the criteria and are waiting for a seat.

On page 8 it is stated that there is a need for curriculum revision in both the BS and AAS degree programs and on page 47 the recommendation is made for revision of the BS degree. What is the rationale for wanting to make these revisions at this time and are there any hindrances to making these changes?

There are several reasons for wanting to make revisions at this time.

FSUS 100, for example, must be included in the AAS degree curriculum. Another change to the curriculum is changing CHEM 121 to CHEM 114 due to the new prerequisite of MATH 115 for CHEM 121. The program only recently changed to CHEM 121 upon the recommendation of the chemistry department. The program sees no hindrances to changing the requirement back to CHEM 114.

The revisions to the BS degree program are driven by the needs of the nuclear medicine technologists currently working in the field. Many technologists would like to return to Ferris State University to pursue their BS degree. They are unable to do so because they have to remain employed. The program needs to revise the curriculum to meet their needs.

In the check sheet on page 11, a number of Biology electives are suggested yet your program does not include the prerequisites for several of these courses e.g. BIOL 122. What is the rationale behind the choice of these 300+ Biology electives?

The biology electives selected for the program curriculum were based on a joint decision by the department head for Biology and the program faculty. The majority of the students select BIOL 300 as their elective. Up to this point, students were allowed to register for any of these courses as long as they had successfully completed BIOL 205, Human Anatomy and Physiology.

On page 25 in the survey of employers the percent response to item C in question 9 seems to be higher than the response to the same item in most of the other questions. Do you think that this is an area of concern?

The program will discuss this outcome when a new faculty member is added.

On page 27 in paragraph 3 it is indicated that surveys related to the clinical experience are not included in this document. Why they were not included? Is a summary of the results of that survey available that could be supplied to us?

The surveys completed by the interns are based upon their clinical experience at their particular internship site. The program has the surveys for each site. All sites are not summarized together. An example of the survey form can be provided.

On page 34 your report states that the Adjunct Clinical Instructors have been utilized as the Advisory Committee. Were you able to separate out the data from these individuals from the other surveys?

No, the data from these individuals are not separated out from the other surveys. Minutes from the Adjunct Clinical Instructors' meeting are used in an advisory fashion.

On page 37 the report indicates the need for new equipment yet the Administrative Program Review on page 67 indicates the equipment is state of the industry. Please elaborate on your equipment needs.

The need for new equipment is always present. The equipment in nuclear medicine technology is constantly being upgraded and revised. The equipment utilized in the nuclear medicine technology program is several generations old. Service contracts are not feasible due to the cost so equipment can become nonfunctional over time.

At the top of page 38 the statement is made that the evaluation of curricula for the programs was accomplished through discussion. Who was involved in this discussion?

Primarily, program faculty. Curricula are also discussed during Adjunct Clinical Instructors' meetings.

At the bottom of page 38 it is mentioned that AAS student have some difficulty with some mathematical relationships. Have you considered requiring MATH 116 rather than Math 115?

No, MATH 116 has not been discussed. The program will take this into consideration.

On page 39 the impact of the new policy of the Physical Sciences Department to require Math 115 as a prerequisite is discussed. What is your basis for assuming that CHEM 114 and CHEM 214 are adequate replacements for CHEM 121 and CHEM 214? Is it possible to change the sequence of the courses that you offer in order to allow students to take CHEM 121 in the winter semester?

CHEM 114 and CHEM 124 were the courses required for the curricula for many years. The program revised the curricula to include CHEM 121 and CHEM 214 upon the recommendation of the physical sciences' department. The change back to the original courses is deemed adequate.

CHEM 121 in the winter semester is not feasible. The students must enroll in BIOL 205 for the winter semester and chemistry must be completed prior to BIOL 205. Another reason is that a solid chemistry background is necessary prior to NUCM 125 which is offered winter semester.

Please discuss the concern mentioned on page 40 related to substitution of COMM 121 for COMM 105 or 221?

The program faculty had concerns regarding requiring COMM 105 or 221 when core curriculum was implemented in the College of Allied Health Sciences. COMM 121 is often transferred into FSU by our transfer students. The students are not given credit for this course. They must enroll in COMM 105 or 221. The students complain regarding this requirement during advising sessions.

On page 41 it is mentioned that biomedical ethics should be a requirement. What is the hindrance to doing this?

The main hindrance is the student fitting the course into their schedule.

The other concern is the transfer student. If the student transfers a cultural enrichment course, should the program require an additional course such as HUMN 220 or 320?

On page 41 the statement is made concerning requiring a foreign language. Please elaborate.

It has been discussed among program faculty that due to a changing population, a foreign language should be required. No decision will be made regarding this issue until another faculty member has been added to the program.

On page 42 the number of graduates appears to decline in AY00/01. What was the number of graduates in AY 01/01? Do you have some insights into the reason for the drop? What is your attrition rate?

A decline in numbers of students entering allied health professions was seen nationally during this time frame. The program did not fill the cap during these years.

Attrition rate averages four students per year.

On page 43 it is mentioned that a national search was done for a full time faculty member. What are the prospects of finding a person for the position and what hindrances are there to finding a new faculty member?

I wish I had a crystal ball for this one! I am going to answer this on a more personal note. I feel the prospects overall are poor. Other nuclear medicine technology programs across the nation are experiencing the same difficulty. However, since writing the PRP we have had a candidate apply for the position. I am keeping my fingers crossed. The hindrance will be salary. The profession of nuclear medicine technology is experiencing a shortage of qualified technologists. When this occurs, salaries are high. FSU cannot match the salaries of the working nuclear medicine technologists. An individual must want to teach in order to accept a position for the salary offered.

In the administrative reports on pages 66 and 70 the cap for each program is listed as 36. Does this mean that you have a total capacity of 72? How were the numbers for the cap determined?

Total capacity for the AAS program is 72. The numbers for the cap are determined by the Joint Review Committee on Educational Programs in Nuclear Medicine Technology.

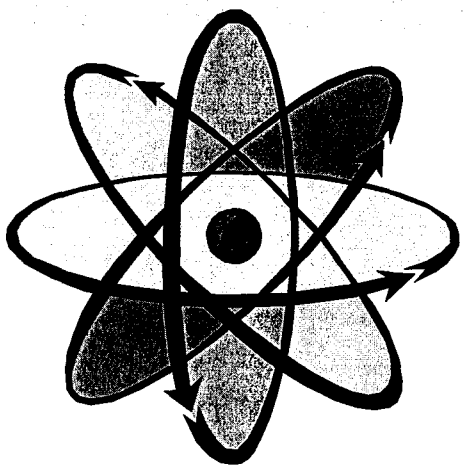
Please discuss the registry options for your students and discuss the pros and cons of each.

The two examinations that graduates of the nuclear medicine technology program may sit for are the American Registry of Radiologic Technologists (ARRT) and the Nuclear Medicine Technology Certification Board (NMTCB). State exams may also be required. Michigan, however, does not have a state licensure exam at this time.

Graduates of the program are encouraged to sit for both the ARRT and the NMTCB. Many graduates, however, opt to sit for the NMTCB only. Employers normally accept either exam.

One of the major reasons that the NMTCB is more popular is because continuing education credits are not required to maintain the certification. This, however, will probably change in the near future. Continuing education credits are required to maintain ARRT registry.

Program Review



Nuclear Medicine Technology

Program Review Panel:

Sheila Squicciarini, Chair
Debra Garza, Program Faculty (Resigned May 2002)
Marie Sickelsteel, Faculty Member, CAHS
Kim Hancock, Faculty Member, Outside of CAHS
Shannon England, Individual with Special Interest in NMT

October 2002

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Section One: Overview of the Program

Introduction

The Nuclear Medicine Technology Programs at Ferris State University include curricula in the Bachelor of Science and Associate in Applied Science degrees. Both degrees serve students whose goal is to work in the field of Nuclear Medicine Technology. Ferris State University currently offers the only college-based Nuclear Medicine Technology Program in the State of Michigan.

Students in both degree programs basically complete the same course work during the first two years. Three semesters of didactic courses are followed by two semesters of clinical internship at an affiliated hospital. Students wishing to pursue a Bachelor of Science degree return to campus for their remaining courses. At the completion of either degree, the student is able to sit for one or both national certification/registry examinations, the ARRT and the NMTCB.

Professional courses on-campus include health physics, nuclear medicine instrumentation, and clinical procedures in nuclear medicine technology. Students pursuing the Associate in Applied Science degree need to complete specified courses in biology, chemistry, mathematics, medical terminology, English, and cultural enrichment and social awareness electives. Bachelor of Science degree students need additional courses in biology, chemistry, communication, management, statistics, English, mathematics, and cultural enrichment and social awareness electives. Additional professional courses, as well as core courses within the College of Allied Health Sciences, are also required.

Clinical internship is completed at one of twenty-two affiliated hospitals in Michigan. Students and hospitals participate in a placement system to determine where the student will intern. Internship begins the first day of fall semester classes and ends on the Friday prior to graduation in May. Students follow the academic calendar during internship.

Affiliate sites:

HOSPITAL	LOCATION
Alpena General Hospital	Alpena, MI
Battle Creek Health Systems	Battle Creek, MI
Bay Regional Medical Center	Bay City, MI
Bronson Methodist Hospital	Kalamazoo, MI
Borgess Medical Center	Kalamazoo, MI
Covenant Hospital	Saginaw, MI
Genesys Regional Medical Center	Grand Blanc, MI
Henry Ford Hospital	Detroit, MI
Ingham Regional Medical Center	Lansing, MI
Mercy General Hospital	Muskegon, MI
Mid-Michigan Regional Medical Center	Midland, MI
Oakwood Hospital	Dearborn, MI
St. Joseph Mercy Hospital	Ann Arbor, MI
St. Mary's Health Services	Grand Rapids, MI
Sparrow Health System	Lansing, MI
Spectrum Health – Butterworth	Grand Rapids, MI
Spectrum Health – Blodgett	Grand Rapids, MI
University of Michigan Medical Center	Ann Arbor, MI
Veterans Administration Medical Center	Ann Arbor, MI
Veterans Administration Medical Center	Detroit, MI
W.A. Foote Memorial Hospital	Jackson, MI
War Memorial Hospital	Sault Ste Marie, MI

Curriculum checksheets and program information sheets for the Bachelor of Science and the Associate in Applied Science Degrees are included at the end of Section One.

Mission and Goals

The mission of the Nuclear Medicine Technology Programs is to prepare graduates for entry-level positions in the field of nuclear medicine technology.

The goal of the program is for graduates to meet the terminal relevant educational tasks as defined by The Joint Review Committee on Educational Programs in Nuclear Medicine Technology and the Nuclear Medicine Technology Certification Board.

These tasks are as follows:

Imaging Procedures

1. Administrative
   a. Schedule patient studies, ensuring appropriateness, interact with hospital staff to effect proper and timely arrangements for patient studies.
   b. Determine the most appropriate sequence for multiple procedures.
   c. Inform patient and nursing staff of appropriate standing and special orders to include medication.
   d. Maintain all appropriate records at patient imaging procedures as required.

2. Patient Care
   a. Receive patient and provide proper nursing care during imaging procedure.
   b. Provide patient comfort before, during, and after the procedure, and reassure the patient to relieve any apprehension.
   c. Maintain good communication with patient, explain procedure, answer questions, and listen to patient's comments.
   d. Provide functionally safe and sanitary conditions for patient.
   e. Recognize emergency conditions.

3. Patient Preparation
   a. Verify patient identification and written orders for imaging procedures.
   b. Check procedural contraindications and obtain pertinent history.
   c. Obtain informed consent when necessary.
   d. Check patient clothing for objects that may attenuate radiation.
   e. Prepare patient premedications and instruct patient to void, etc. Include any necessary preparation for the imaging procedure required.
   f. Transfer patient from the wheelchair/stretcher to the imaging table.
   g. Administer the appropriate radiopharmaceutical using proper technique.
   h. Observe the patient for possible reactions, following radiopharmaceutical administration.
   i. Discard contaminated materials in appropriate waste containers.
   j. Wait appropriate length of time after administration of radiopharmaceutical to begin imaging procedure.

4. Imaging Procedures
   a. Select proper instrument and auxiliary equipment necessary to perform imaging procedure as indicated by protocol.
   b. Prepare instrument for procedure.
   c. Select appropriate patient positions for procedures.
   d. Place patient in correct position using supportive materials and immobilizers to obtain image for each view.
   e. Determine correct detector to patient distance for imaging procedures.
   f. Indicate the appropriate anatomical landmarks for each view of a procedure.
   g. Perform imaging procedure.
   h. Collect specimens according to imaging protocol, if applicable.
   i. Process film according to manufacturer's specifications and film processor optimum operation.
   j. Record information relative to any special circumstance affecting the procedure as needed.
   k. Maintain quality control/quality assurance in all aspects of the imaging procedure.
   l. Monitor the performance of the film processor system.

Instrumentation

5. Scintillation Camera
   a. Select radionuclide source of appropriate activity and energy for camera uniformity check.
   b. Perform field uniformity check on the scintillation camera on a routine basis.
   c. Analyze field uniformity image.
   d. Differentiate source of non-uniformities using proper procedures.
   e. Perform line distortion check on the camera on a routine basis.
   f. Identify any line distortion on the image.
   g. Utilize a high resolution phantom compatible with the specified resolution of the camera.
   h. Compare obtained resolution images with prior resolution images.
   i. Conduct sensitivity checks on the camera.
   j. Maintain records of camera quality control – uniformity, linearity, resolution, sensitivity, and chi-square testing.
   k. Maintain records for quality control checks on imaging recording devices.

6. Scintillation Counters
   a. Evaluate scintillation counter performance on a routine basis.
   b. Calibrate a scintillation counter.
   c. Determine percent full width of half maximum energy resolution on the scintillation counter.
   d. Conduct sensitivity checks on the counter.
   e. Determine cause for higher than normal background obtained on a counter.
   f. Conduct a chi-square test on the counter.
   g. Maintain records of scintillation counter performance.

7. Gas-Filled Detectors
   a. Operate gas-filled detectors.
   b. Perform reference check source tests on survey instruments and compare with previous results.
   c. Maintain records on survey instruments as required.
   d. Calculate the activity linearity of the dose calibrator over the entire range of radio-nuclide activity to be measured. sensitivity, and chi-square testing.
   k. Maintain records for quality control checks on imaging recording devices.

6. Scintillation Counters
   a. Evaluate scintillation counter performance on a routine basis.
   b. Calibrate a scintillation counter.
   c. Determine percent full width of half maximum energy resolution on the scintillation counter.
   d. Conduct sensitivity checks on the counter.
   e. Determine cause for higher than normal background obtained on a counter.
   f. Conduct a chi-square test on the counter.
   g. Maintain records of scintillation counter performance.

7. Gas-Filled Detectors
   a. Operate gas-filled detectors.
   b. Perform reference check source tests on survey instruments and compare with previous results.
   c. Maintain records on survey instruments as required.
   d. Calculate the activity linearity of the dose calibrator over the entire range of radionuclide activity to be measured.
   e. Test accuracy of dose calibrator for commonly used radionuclides that have adequate reference standards available.
   f. Maintain records of dose calibrator quality control procedures.

8. Computers
   a. Maintain temperature and humidity levels for proper computer operation.

Radiation Protection and Radiopharmacy

9. Compliance with Regulations
   a. Maintain required radiation records to comply with the NRC, state, FDA, and JCAH regulations and standards.

10. Protection Procedures
   a. Employ personnel monitoring devices.
   b. Employ patient monitoring devices, if necessary.
   c. Review monthly personnel exposure records in regard to maximum permissible dose limit.
   d. Take appropriate measures to reduce radiation exposure when necessary.
   e. Keep radiation exposure as low as is reasonable achievable using appropriate protection parameters continuously.
   f. Notify the appropriate authority of excessive radiation exposure.
   g. Notify the appropriate authority of misadministration, when applicable.
   h. Use proper shielding and inverse square law to reduce radiation exposure.
   i. Use proper methods for the storage of radioactive drugs.
   j. Instruct the patient, family, and hospital staff in radiation safety precautions after administration of diagnostic and therapeutic radiopharmaceuticals.

11. Radiation Surveys
   a. Perform radiation surveys.
   b. Use proper survey meters for each type and level of radiation.
   c. Follow regulations regarding personnel surveys and record results.
   d. Perform wipe tests for surface contamination.
   e. Record data obtained from radiation surveys and quality control on survey instruments in some standard format.

12. Radiopharmaceutical Laboratory
    a. Perform required procedures for maintenance of the radiopharmacy lab.
    b. Log receipts and wipe test results of radioactive materials for maintenance of the radiopharmaceutical laboratory.
    c. Deface radiation symbols on boxes, etc. before discarding.
    d. Store non-radioactive supplies, including kits, appropriately.

13. Generator Elution (Mo-99/Tc-99m generators only)
    a. Assemble generator and shield with lead.
    b. Elute generator using aseptic technique.
    c. Assay the generator eluate using a dose calibrator or whole vial assay.
    d. Record the generator eluate assay results and time of assay in a log book.
    e. Check the eluate for radionuclide and chemical contamination and record results.

14. Radiopharmaceutical Compounding
    a. Review daily work schedule and prepare appropriate radiopharmaceutical compounds.
    b. Determine within activity limits, the total volume and radioactivity to be added to a radiopharmaceutical kit and record the volume of the generator eluate used.
    c. Prepare radiopharmaceutical assay form for each lot of material.
    d. Check total activity in radiopharmaceutical reaction vials with a dose calibrator.
    e. Calculate the concentration of radioactivity of a radioactive compound, and label vial as to date and time of preparation, lot number, concentration, and volume.
    f. Check all radiopharmaceutical preparations for proper pH, color, clarity, and particle size, if appropriate, and record on radiopharmaceutical assay form.
    g. Determine the radiochemical purity of radiopharmaceutical preparation by chromatography.

15. Radiopharmaceutical Dispensing
    a. Verify and label radiopharmaceutical vial, including concentration, specific activity, total activity, lot number, assay time and date.
    b. Determine lapsed time between initial and required assay of a radiopharmaceutical for quantification of activity.
    c. Calculate activity remaining using the appropriate decay factor for time elapsed.
    d. Calculate activity to administered for diagnostic and therapeutic procedures.
    e. Calculate the volume or number of capsules of the radiopharmaceutical required for diagnostic and therapeutic procedures.
    f. Draw up the correct volume of the radiopharmaceutical into the syringe, using aseptic technique and using proper radiation safety precautions.
    g. Verify, using a dose calibrator, the activity to be administered in the dispensed preparation.
    h. Record the patient name, examination, radiopharmaceutical activity, volume, lot number, time, date and prescription number, if applicable.
    i. Maintain appropriate radiopharmaceutical record for each lot of material and for the dispensed preparation.

16. Radiopharmaceutical Administration
    a. Determine proper method and route of administration.
    b. Assemble proper materials for intravenous, gaseous, or oral administration.
    c. Dispose of radioactive material when appropriate.

17. Waste Disposal
    a. Monitor all radioactive vials and determine if acceptable to discard.
    b. Monitor alumina column from generators to determine if acceptable to discard.
    c. Maintain long-term storage area to allow for the decay of radioactivity.
    d. Maintain log of radiopharmaceutical disposal.

18. Decontamination
    a. Perform decontamination procedure as required.
    b. Notify persons in the area that a spill has occurred.
    c. Cover the spill with absorbent paper to prevent spread.
    d. Check the area around the spill, hands, and clothing for contamination.
    e. Survey area to determine if contamination has been removed.
    f. Report the radioactive spill to the radiation safety officer.
    g. Record details of radioactive spill and corrective action on correct form.

Non-Imaging Procedures

19. Administrative Procedures
    a. Schedule patient for non-imaging procedure.
    b. Maintain all appropriate records of patient's non-imaging procedure.

20. Patient Preparation
    a. Verify patient identification and written orders for non-imaging studies.
    b. Inform patient and nursing staff of appropriate standing and special orders to include medications and specimen collection.
    c. Check procedural contraindications for non-imaging study and obtain pertinent patient history.
    d. Obtain informed consent for non-imaging study when necessary.

21. Laboratory Equipment
    a. Check accuracy and operation of pipetting devices.
    b. Maintain constant temperature of water bath and refrigerator.
    c. Compute relative centrifugal force, operate centrifuge, and maintain routine tachometer checks.
    d. Calibrate and use laboratory scales and balances.
    e. Operate vortex mixers and shakers, maintaining constant conditions.
    f. Maintain quality control records of all non-imaging equipment.

22. Specimen Collection and Handling
    a. Select proper equipment for blood collection.
    b. Choose proper anticoagulant or preservative for specific procedure.
    c. Perform venipuncture at appropriate time intervals.
    d. Add hemolyzing components when necessary.
    e. Place blood on ice as required.
    f. Determine hematocrit.
    g. Centrifuge blood and separate blood components as required.
    h. Store aliquot of patient sample as dictated by protocol.
    i. Add a preservative to urine container.
    j. Aliquot urine sample and measure total urine volume.
    k. Collect additional urine if volume collected is insufficient.
    l. Label cells with a radiopharmaceutical according to protocol for non-imaging procedure.

23. Standard of Controls
    a. Choose appropriate volumetric glassware for dilution of the standard.
    b. Add a portion of solvent to glassware and a solution to prevent sticking.
    c. Add an amount of activity similar to that given to the patient and dilute up to calibration mark.

24. Counting Equipment
    a. Set pulse height analyzer on scintillation detector and center photopeak within analyzer settings chosen for procedure.

25. Calculations
    a. Reduce data to net counts by subtracting room background.

Program History

The Nuclear Medicine Technology curriculum was activated in September 1974 as a seven (7) quarter Associate in Applied Science degree program in response to the needs voiced by the nuclear medicine community. At that time, a considerable number of individuals were working in the field who did not meet minimum standards of education and experience. Data obtained from the American Hospital Association revealed there was indeed a need for a college-based program for nuclear medicine technology in Michigan. Since that time, the curriculum has been expanded to include a four year Bachelor of Science degree program. The primary program objective was and still is to educate fully qualified nuclear medicine technologists.

Impact of the Program on the University, the State, and the Nation

The Nuclear Medicine Technology Programs offer Ferris State University students the opportunity to complete a college-based program with excellent employment potential. Students interested in a health care profession that involves technical skills, patient contact, computer proficiency, and radiation handling are drawn to this field. Many of our students come from other curricula such as pre-medicine, pre-pharmacy, biotechnology, and applied biology. The Nuclear Medicine Technology Program offers these students an option without having to leave Ferris State University.

Enrollment has not been a problem. There is currently a "waiting list" to enter the program. Students waiting to enter the program are designated as Pre-Nuclear Medicine. Entry to the program is determined by priority date (application date) and eligibility criteria.

The Ferris State University Nuclear Medicine Technology Program is the only college-based degree programs in the state. Ferris State University offers one of the few Nuclear Medicine Technology programs in the nation with an on-campus laboratory. It is currently the largest program nationally in regards to enrollment.

Ferris State University supplies Michigan with the majority of its Nuclear Medicine Technologists. There are many Ferris State University Nuclear Medicine Technologists working throughout the United States and internationally. Representation can be seen at national professional meetings and seminars. Telephone calls are received routinely from throughout the United States seeking Ferris State University Nuclear Medicine Technologists.

The employment demands for Nuclear Medicine Technologists have always been cyclic. The past several years, however, have seen a dramatic rise in employment opportunities due to the opening of cardiac and oncology clinics. As the age of the general population rises and with the advent of new technologies, the services of nuclear medicine departments are expected to increase.

Expectations

Nuclear Medicine Technologists will continue to be in demand both in Michigan and nationally. There is currently a shortage of qualified Nuclear Medicine Technologists. Graduates of the program can expect sign-on bonuses averaging $7,500.

Plans for Improvement

Our plans for improvement have been primarily derived from our 1996 self-study and site visit by the Joint Review Committee on Educational Programs in Nuclear Medicine Technology. These plans include curriculum revision, particularly for the Bachelor of Science degree.

The current curriculum was approved during the implementation of the core curriculum in the College of Allied Health Sciences. The program needs to re-evaluate and devise a curriculum that better meets the needs of the graduates of the Associate in Applied Science degree program.

FERRIS STATE UNIVERSITY
COLLEGE of ALLIED HEALTH SCIENCES

NUCLEAR MEDICINE TECHNOLOGY, A.A.S. and B.S.
IMAGING FROM THE INSIDE OUT – A.A.S.
PROFESSIONAL EXCELLENCE IN IMAGING – B.S.

WHAT YOU SHOULD KNOW:

- Ferris has the only University-based program in Michigan.
- Job placement is 100%.
- Graduates are recruited nationally.
- 100% pass rate on national exams during last 2 years.

WHAT NUCLEAR MEDICINE TECHNOLOGISTS DO:

- In nuclear medicine, radionuclides (unstable atoms that emit radiation spontaneously) are used to diagnose and treat disease. Nuclear medicine technologists administer these radiopharmaceuticals to patients, then monitor the characteristics and functions of tissues or organs in which they localize. Abnormal areas show higher or lower concentrations of radioactivity than normal.
- Nuclear medicine technologists operate gamma scintillation cameras that detect and map the radioactive material in the patient's body to create an image.
- Nuclear medicine technologists explain test procedures to patients. They prepare a dosage of the radiopharmaceutical and administer it by injection or other means. Technologists then produce the images for a physician to interpret. Technologists adhere to safety standards to keep radiation doses to workers and patients as low as reasonably achievable.

RELATED OCCUPATIONS:

Nuclear medicine technologists operate sophisticated equipment to help physicians and other health practitioners diagnose and treat patients. Radiologic technologists, diagnostic medical sonographers, cardiovascular technologists, health physicists, and radiopharmacists are related health care professions.

EMPLOYMENT PROSPECTS/SALARIES:

Employment growth is expected to be above average. Almost 8 out of 10 jobs are in hospitals. The rest are in specialized settings including imaging centers, radiopharmacies, and manufacturers.

The median annual base salary of full-time nuclear medicine technologists was $39,610 in January, 1998. (Note: Much higher currently due to an increased demand.)

GOOD PREPARATION FOR SUCCESS IN THE PROGRAM:

Biology, chemistry, and algebra classes are good background for success in Nuclear Medicine Technology classes.

200 FERRIS DRIVE, VFS 210, BIG RAPIDS, MI 49307-2740
PHONE: 231-591-2270 OR 1-800-462-8[illegible] 9 MAIL: CAHSINFO@FERRIS.EDU

THE PROGRAM AT FERRIS (INCLUDING ADMISSION REQUIREMENTS):

Accredited by the Joint Review Committee on Educational Programs in Nuclear Medicine Technology, the program combines general education and specialized courses with clinical training.

The first three semesters are spent on the Big Rapids campus. Course work includes human anatomy and physiology, radiation and nuclear physics, and nuclear medicine theory and methods.

Students spend the next two semesters in a hospital setting with emphasis on the clinical application of theory. Students pursuing the Bachelor of Science degree would return to the Big Rapids campus for an additional two years.

Graduates of this program are well prepared to work in the field of nuclear medicine, and are eligible to take the national certifying examinations for registry in nuclear medicine technology.

High school graduates entering the program must have at least a 3.0 GPA, a math ACT subscore of 19, and a one year "B" average or better in chemistry.

Transfer college students must have a 2.5 GPA and a "C" or better in MATH 110 or the equivalent, and in one semester of chemistry with a lab component.

FERRIS STUDENT ORGANIZATION:

The Ferris Nuclear Medicine Association is a very active student organization. The Association provides service to the community, as well as participating in educational opportunities such as conferences.

FOR ADDITIONAL INFORMATION:

Additional information on a career as a nuclear medicine technologist is available from: The Society of Nuclear Medicine-Technologist Section, 1850 Samuel Morse Drive, Reston, VA 22090.

Information on certification is available from: Nuclear Medicine Technology Certification Board, 2970 Clairmont Road, Suite 610, Atlanta, GA 30329.

For a list of accredited programs in nuclear medicine technology, write to: Joint Review Committee on Educational Programs in Nuclear Medicine Technology, 350 South 400 East, Suite 200, Salt Lake City, UT 84111-2938.

For information on a career as a nuclear medicine technologist, enclose a stamped, self-addressed business size envelope with your request to: American Society of Radiologic Technologists, Customer Service Department, 15000 Central Ave., SE, Albuquerque, NM 87123-3917, or call (800) 444-2778.

VISIT OUR WEBSITE AT: WWW.FERRIS.EDU

Revised: 01/22/01

FERRIS STATE UNIVERSITY
COLLEGE OF ALLIED HEALTH SCIENCES
Nuclear Medicine Technology – Associate in Applied Science Degree

NOTE: Meeting requirements for graduation is the responsibility of the student. Your advisor is available to assist you.

FIRST YEAR

1st Semester	Grade
*MATH 115 Intermediate Algebra	0-3 ____
CHEM 121 General Chemistry 1	5 ____
ENGL 150 English 1	3 ____
NUCM 120 Principles of Nuclear Medicine	6 ____
	14-17

2nd Semester	
BIOL 205 Human Anatomy & Physiology	5 ____
ENGL 250 English 2	3 ____
MRIS 102 Orient. to Medical Vocabulary	1 ____
CCHS 101 Orientation to Health Care	3 ____
CHS 102 Safety Issues	1 ____
CCHS 103 Health Care Skills	1 ____
NUCM 125 Nuc. Med. Non-Imaging Proc.	3 ____
	17

Summer Semester

Social Awareness Elective	3 ____
Cultural Enrichment Elective	3 ____
COMM 105 or COMM 221	3 ____
NUCM 135 Nuc. Med. Imaging Procedures	4 ____
NUCM 140 Cross-Sectional Imaging	1 ____
	14

SECOND YEAR

1st Semester	Grade
NUCM 291 Clinical Application in NMT 1	12 ____

2nd Semester	
NUCM 292 Clinical Application in NMT 2	12 ____
CAHS Computer Competency	_____

* MATH 115, equivalency or proficiency (Math ACT subscore of 24 or better) required for graduation.

69 – 72 semester hours required for graduation

Revised 5/2/00

FERRIS STATE UNIVERSITY
COLLEGE OF ALLIED HEALTH SCIENCES
Nuclear Medicine Technology – Bachelor of Science Degree

NOTE: Meeting requirements for graduation is the responsibility of the student. Your advisor is available to assist you.

FIRST YEAR

1st Semester

		Grade
*MATH 115	Intermediate Algebra	0-3 ____
CHEM 121	General Chemistry 1	5 ____
ENGL 150	English 1	3 ____
NUCM 120	Principles of Nuclear Medicine	6 ____
		14-17

2nd Semester

BIOL 205	Human Anatomy & Physiology	5 ____
ENGL 250	English 2	3 ____
MRIS 102	Orient. to Medical Vocabulary	1 ____
CCHS 101	Orient. to Health Care	3 ____
CCHS 102	Safety Issues	1 ____
CCHS 103	Health Care Skills	1 ____
NUCM 125	Nuc. Med. Non-Imaging Proc.	3 ____
		17

Summer Semester

Cultural Enrichment Elective		3 ____
Social Awareness Elective		3 ____
COMM 105 or COMM 221		3 ____
NUCM 135	Nuc. Med. Imaging Procedures	4 ____
NUCM 140	Cross-Sectional Imaging	1 ____
		14

SECOND YEAR

1st Semester

		Grade
NUCM 291	Clinical Application in NMT 1	12 ____

2nd Semester

NUCM 292	Clinical Application in NMT 2	12 ____
CAHS Computer Competency		_____

THIRD YEAR

1st Semester

CHEM 214	Organic Chemistry	4 ____
ENGL 321	Advanced Composition	3 ____
MATH 120	Trigonometry	3 ____
NUCM 340	Advanced Imaging Techniques	2 ____
Social Awareness Elective		3 ____
		15

2nd Semester

300 Level Communications Course		3 ____
HCSA 335	Supervisory Practices for Health Care Workers	4 ____
NUCM 360	Mgmt. & Leadership in NMT	3 ____
Cultural Enrichment Elective		3 ____
300+ Biology Elective+		3 ____
		16

+BIOL 300, 370, 373, 375, 386

FOURTH YEAR

1st Semester

EHSM 315	Epidemiology & Statistics	3 ____
NUCM 440	Advanced Nuclear Cardiology	3 ____
**300+ Cultural Enrichment Elective		3 ____
**300+ Social Awareness Elective		3 ____
***Profession Related Elective		3 ____
		15

2nd Semester

NUCM 491	Clin. Internship in NMT 3	12 ____
NUCM 499	Capstone in NMT	2 ____
		14

*MATH 115, equivalent or proficiency (Math ACT subscore of 24 or better) is required for graduation.
**See University catalog for requirements regarding race, ethnicity and/or gender, and global consciousness.
***Program approval

129-132 semester hours required for graduation

Revised 5/12/00

NUCLEAR MEDICINE TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE

Accredited by the Joint Review Committee on Educational Programs and Nuclear Medicine Technology

Accredited by the Joint Review Committee on Educational Programs in Nuclear Medicine Technology, the five semester program combines general education and specialized courses with clinical training.

The first three semesters are spent on the Big Rapids campus. Instruction includes human anatomy and physiology, radiation and nuclear physics, and nuclear medicine theory and methods, in addition to general education courses.

Students spend the next two semesters in a hospital setting with emphasis on the clinical application of theory.

The Nuclear Medicine Technology program prepares men and women for careers in the diagnostic imaging profession.

The nuclear medicine technologist is a trained professional using radioactive pharmaceuticals for diagnostic, therapeutic, and investigative applications in medicine.

Technologists work primarily in hospitals and clinics with duties ranging from assessing a patient's thyroid function to storage, inventory, and control of radioactive material.

Graduates of this program are well prepared to work in the field of nuclear medicine, and are eligible to take the national certifying examination for registry in nuclear medicine technology. Graduates may also enter the bachelor's degree program in nuclear medicine.

High school graduates entering the program must have at least a 3.0 GPA, a math ACT score of 19, and a one year "B" average or better in chemistry. If the requirements are not met at the high school level, they must be met at the college level prior to entry into the professional sequence.

Transfer college students must have a 2.5 GPA and a "C" or better in MATH 110 or the equivalent, and in one semester of chemistry with a lab component.

Students must be 18 years of age by the second semester of the year of entry into the program. To assure students of quality technical training in both classroom/lab instruction and clinical practice, enrollment is limited. Students who meet the program's admission criteria are accepted by priority date of application. It is essential to apply for admission at the earliest possible date.

In order to graduate, a student must maintain a 2.0 cumulative GPA and a "C" or better in MATH 115, CHEM 121, BIOL 205, ENGL 150, ENGL 250, MRIS 102, CCHS 101, CCHS 102, CCHS 103, COMM 105 or COMM 221, NUCM 120, NUCM 125, NUCM 135, NUCM 140, NUCM 291, and NUCM 292. Graduates must also meet all Ferris State University requirements as stated in the catalog.

Prior to the clinical internship, the student must provide proof of current CPR certification; recent (within one year) negative TB test results; health insurance and several vaccinations, including Hepatitis B, or proof of antibody titer. Please contact the program coordinator at 1-800-462-8553 for a list of specified immunizations.

If the Hepatitis B vaccine waiver declining the vaccine is signed, it is with the understanding that the waiver may make the student ineligible for placement at internship sites, which will ultimately result in the inability to graduate.

(See "Disclaimer" in the CAHS General Information section.)

To speak with the accrediting agency about program concerns, contact:

Joint Review Committee on Educational Programs and Nucler Medicine Technology
#1 2nd Ave. East, Ste. C
Polson, MT 59860-2320
(406) 883-0003
E-mail: jrcnmt@ptinet.net

Courses		Credit Hours
General Education		
BIOL 205	Human Anatomy & Physiology	5
CHEM 121	General Chemistry 1	5
COMM 105	Interpersonal Communication	3
Or		
COMM 221	Small Group Decision Making	3
ENGL 150	English 1	3
ENGL 250	English 2	3
*MATH 115	Intermediate Algebra	3
Electives:	Cultural Enrichment	3
	Social Awareness	3
Major		
CAHS Computer Competency		--
CCHS 101	Orientation to Health Care	3
CCHS 102	Safety Issues in Health Care	1
CCHS 103	Clinical Skills in Health Care Providers	1
MRIS 102	Orientation to Medical Vocabulary	1
NUCM 120	Principles of Nuclear Medicine	6
NUCM 125	Nuclear Med. Non-Imaging Procedures	3
NUCM 135	Nuclear Med. Imaging Procedures	4
NUCM 140	Cross-Sectional Imaging	1
NUCM 291	Clinical Application in NMT 1	12
NUCM 292	Clinical Application in NMT 2	12

Minimum semester credit hours required for Nuclear Medicine Technology A.A.S. degree: 69-72

*MATH 115 equivalency or proficiency, or Math ACT subscore of 24 or better required for graduation.

NUCLEAR MEDICINE TECHNOLOGY
BACHELOR OF SCIENCE DEGREE

Accredited by the Joint Review Committee on Educational Programs in Nuclear Medicine Technology

Accredited by the Joint Review Committee on Educational Programs in Nuclear Medicine Technology, the Bachelor of Science Degree at Ferris State University provides graduates of an Associate in Applied Science Degree in Nuclear Medicine Technology an opportunity to enhance their professional skills. The graduates of this program are well prepared to work in the field of nuclear medicine technology.

Two options are available for entry into the Bachelor of Science Degree program in Nuclear Medicine Technology.

Option 1 is for the high school graduate or college transfer student wishing to enter the four year (nine semester) program. The first three semesters are spent on the Big Rapids campus. Course work includes anatomy and physiology, chemistry, and nuclear medicine theory and practice, as well as general education courses. The next two semesters are spent in a hospital setting with emphasis on the clinical application of theory. Upon successful completion of the first five semesters, the students will receive an Associate of Applied Science Degree in Nuclear Medicine Technology, and be eligible to take the national certification examination.

Option 2 is for the graduate of an accredited program with an Associate in Applied Science Degree in Nuclear Medicine Technology.

During the final two years of the program, students will complete four semesters that combine general education and specialized nuclear medicine technology courses with clinical training. The first three of these semesters are spent on the Big Rapids campus. Course work includes advanced imaging techniques, nuclear cardiology, management and leadership, and science courses in addition to general education courses. Students spend the last semester of the program at an internship site that emphasizes their area of interest within the field of nuclear medicine technology.

In order to graduate, a student must maintain a 2.0 cumulative GPA and a letter grade of "C" or better in CHEM 214, MATH 120, 300+ Science course, ENGL 321, HCSA 335, EHSM 315, and all courses with a prefix of NUCM, as well as CAHS core requirements. Transfer students will also be required to complete ENGL 150, ENGL 250, CCHS 101, CCHS 102, and CCHS 103 with a letter grade of C or better. Graduates must also meet all Ferris State University requirements as stated in the catalog.

To assure students of quality technical training in both classroom instruction and clinical practice, enrollment is limited. Students who meet the program's admission criteria are accepted by priority date of application.

Prior to the clinical internship, the student must provide proof of current CPR certification, recent (within one year) negative TB test results, health insurance, and several vaccinations including Hepatitis B, or proof of antibody titer. Please contact the program coordinator at 1-800-462-8553 for a list of specified immunizations.

If the Hepatitis B vaccine waiver declining the vaccine is signed, it is with the understanding that the waiver may make the student ineligible for placement at internship sites, which will ultimately result in the inability to graduate.

(See "Disclaimer" in the CAHS General Information section.)

Transfer students will receive an individual evaluation to determine the specific courses needed.

Graduates must complete all general education requirements as outlined in the "General Education" section of this catalog.

Admission to the Curriculum:

The admission requirements for the Bachelor of Science Degree in Nuclear Medicine Technology are:

OPTION 1:

Entry from High School:
- 3.0 cumulative GPA or higher
- Math ACT score of 19 or higher
- One year of high school chemistry with a letter grade of B or better **OR**

College Transfer Students:
- 2.5 cumulative GPA or higher
- Letter grade of C or better in MATH 110 or the equivalent
- Letter grade of C or better in one semester of college chemistry with a lab component

OPTION 2:

Graduates of an Associate of Applied Science Degree in Nuclear Medicine Technology from an accredited program:
- 2.5 cumulative GPA or higher
- Letter grade of C or better in MATH 115, BIOL 205, MRIS 102, COMM 105 OR COMM 221, and all courses with the prefix of NUCM or their equivalents. Must be eligible to take, or have successfully passed, the national certifying examination for registry in nuclear medicine technology.

To speak with the accrediting agency about program concerns, contact: *Joint Review Committee on Educational Programs and Nuclear Medicine Technology*
#1 – 2nd Ave., East, Suite C
Polson, MT 59860-2320 Telephone: (406) 883-0003
e-mail: jrcnmt@ptinet.net

Courses		Credit Hours
General Education		
BIOL 205	Human Anatomy and Physiology	5
300+ Biology Elective+		3-5
+BIOL 300, 370, 373, 375, 386		
CHEM 121	General Chemistry 1	5
CHEM 214	Organic Chemistry	4
COMM 105	Interpersonal Communication **OR**	3
COMM 221	Small Group Decision Making	3
300 Level Communications Course		3
ENGL 321	Advanced Composition	3
ENGL 150	English 1	3
ENGL 250	English 2	3
*MATH 115	Intermediate Algebra	3
MATH 120	Trigonometry	3
Electives:	Cultural Enrichment	3
	Social Awareness	3
	**300+ Cultural Enrichment	3
	**300+ Social Awareness	3
	***Profession Related Elective	3
Major		
CAHS Computer Competency		--
CCHS 101	Orientation to Health Care	3
CCHS 102	Safety Issues in Health Care	1
CCHS 103	Clinical Skills for Health Care Providers	1
EHSM 315	Epidemiology & Statistics	3
HCSA 335	Supervisory Practices for Health Care Workers	4
MRIS 102	Orientation to Medical Vocabulary	1
NUCM 120	Principles of Nuclear Medicine	6
NUCM 125	Nuclear Med. Non-Imaging Procedures	3
NUCM 135	Nuclear Medicine Imaging Procedures	4
NUCM 140	Cross-Sectional Imaging	1
NUCM 291	Clinical Application in NMT 1	12
NUCM 292	Clinical Application in NMT 2	12
NUCM 340	Advanced Imaging Techniques	2
NUCM 360	Management & Leadership in NMT	3
NUCM 440	Advanced Nuclear Cardiology	3
NUCM 491	Clinical Internship in NMT 3	12
NUCM 499	Capstone for Nuclear Medical Technology	1
Minimum semester credit hours required for Nuclear Medicine Technology BS degree:		129-132

*MATH 115 equivalent or proficiency, or Math ACT subscore of 24 or better is required for graduation.

**See University catalog for requirements regarding race, ethnicity, and/or gender, and global consciousness.

***Program approval

Section Two: Surveys of Program Graduates

Information for this survey was gathered from graduates throughout the United States. A survey form was sent to 120 graduates of the Nuclear Medicine Technology Programs. The program admits that graduate surveys have not been used extensively in the past. Graduates, however, are surveyed annually in regards to their internship sites and overall academic experience only.

Information gathered from graduates of the Bachelor of Science and Associate in Applied Science Degrees in Nuclear Medicine Technology, as well as the survey form used, is included.

Survey of Graduates
Nuclear Medicine Technology

In May 2002, a survey was sent to 120 graduates from Ferris State University's Nuclear Medicine Technology Program. No differentiation between degree programs was made. Twenty-five surveys were returned for a response rate of 20.8%. Twenty-four surveys were returned as undeliverable or with no forwarding address. A copy of the survey form and complete results are included.

Results

Sixty-eight percent of those responding to the survey were graduates of the Associate of Applied Science degree program and 32% of the Bachelor of Science degree program.

The years of graduation were as follows: 1994 – 1997 (32%), 1981 – 1985 (28%), 1998 – 2001 (24%), 1990 – 1993 (8%), and 1986 – 1989 (8%).

The majority of the respondents (54%) are employed as Staff Nuclear Medicine Technologists. The remainder are in the following positions: Lead Nuclear Medicine Technologists (13%), Contingent Nuclear Medicine Technologists (13%), Management/ Supervisory Positions (13%), and Sales (0.7%).

Twenty-nine percent have been employed at their current site for 1 – 3 years followed by 25% for 5 – 10 years, 17% for 10 + years, 17% for 3 – 5 years, and 12% for 1 year or less.

Starting salaries were as follows: $40,000 - $49,999 (24%), $30,000 - $39,999 (20%), $20,000 - $29,999 (20%), $50,000 - $59,999 (12%), $60,000 and above (12%), and not available (12%).

The majority of the graduates do not work evenings or weekends. Twenty percent responded that they do work evenings and 40% responded that they do work weekends but only on-call. Forty percent are required to be on-call as part of their job description.

Sixty-four percent of graduates responded that they did not have difficulty finding employment after graduation. Comments include: (a)There was plenty of jobs, once I was able to figure out where to look for them (1998 graduate); (b) Obtained job after internship; lots of jobs available (1999 graduate); (c) Only interviewed for one positioned and was hired (1981 graduate); (d) Jobs are everywhere with severe shortages at a lot of hospitals (1999 graduate); (e) Not at all; the market was wide open then and is again now; there are jobs all over (1990 graduate); (f) I had a job before graduation (1999 graduate); (g) I had a job before graduation (1995 graduate); (h) I had dozens of offers (1988 graduate); and (i) There were many opportunities for employment; You could basically go wherever you wanted (1999 graduate).

Graduates that answered yes to this question had the following comments: (a)Yes, but the field was flooded at the time (1981 graduate); (b) Yes, job market filled in mid to late 1980's (1985 graduate); (c)Yes, limited jobs available (1987 graduate); (d)Yes, in central Michigan; at that time I wasn't too willing to relocate (1999 graduate); (e) Yes, poor job market (1994 graduate); (f) Yes, it took about 6 months; I was applying for jobs in Ohio and Michigan; Very frustrating at the time (1995 graduate); and (g) Yes, DRGs were in effect when I graduated; Not too many jobs and approximately 16 technologists just from Ferris in Detroit area looking for work (1984 graduate).

Graduates employed at the following institutions responded to the survey:

All Children's Hospital
Aultman Hospital, Canton, Ohio
Aureus Medical Temp Company
Columbia University / New York State Psychiatric Institute, New York, New York
Convenant Health, Saginaw, Michigan
Diagnostic Center, Chattanooga, Tennessee
Drew Medical Inc.
Fairview Southdale Hospital, Edina, Minnesota
Heart Center for Excellence, Kalamazoo, Michigan (2)
Hurley Medical Center, Flint, Michigan
Ingham Regional Medical Center, Lansing, Michigan
Kalamazoo Cardiology and Cardiology Care, Kalamazoo, Michigan
Medical Staffing Company (2)
Memorial Medical Center, Ludington, Michigan
Michigan Cardiovascular Institute
North Hills Medical Center, Greenville, South Carolina
Options & Resources, Plymouth, Michigan
Philips – ADAC Laboratories
Retired
St. John Hospital, Detroit, Michigan
St. Joseph Mercy, Clinton Township, Michigan
Scripps Clinic, LaJolla, California
W.A. Foote Memorial Hospital, Jackson, Michigan
William Beaumont Hospital, Royal Oak, Michigan

The following comments were made in response to the question "Which areas of your on-campus education best prepared you for work as a NMT?":

1. Labs utilizing actual cameras, starting IVs, other "hands on" experience.
2. Practical labs, study groups, nuclear medicine lectures, anything that pertained to illustration of the actual work environment.
3. Medical terminology, physiology, nuclear medicine classes.
4. Probably the labs where we prepared various kits. Also, the QC labs were helpful.
5. Hands-on training in the labs.
6. Summer session before internship (labs).
7. Labs, radiation safety.
8. Lab.
9. Medical terminology, biology, physics.
10. Lab.
11. Nuclear Medicine labs.
12. Labs, anatomy classes.
13. The NM lab with its realistic application to clinical application.
14. The hot lab work with calibration, etc.
15. Application of human physiology in relation to Nuclear Medicine, computers, psychology (critical when working with such a large and varied patient population).
16. Hands-on labs.
17. Nuclear medicine classes. The most helpful was summer course with patient positioning and IV training.
18. Labs.
19. The labs working with equipment and learning to start IVs. Medical terminology.
20. Knowledge of QC, surveys and kit preparations helped a lot.
21. NMT classes, micro immunology, chemistry, physics, calculus.
22. The clinical labs were the helpful for preparing for the everyday work of a NMT. Courses related to physics and radiopharmaceuticals were most helpful for taking the boards.
23. Lab.

The question, "Which areas of your on-campus education needs improvement? How can they be improved?", generated the following comments:

1. I don't think anyone does RIA anymore; it probably could be dropped from the lab (if it hasn't already). Has the lab been able to get a better camera?
2. Emphasis should be placed on diagnoses, reasons for exams, reasons not to do tests, preparations, scheduling, and human anatomy and physiology.
3. Financial aid (found out too late how much private money is available). Need to perhaps coordinate this better with incoming students.
4. It's been so long! I was fortunate to get my BS degree. I found it to be set up kind of misleading though. I took all my credits needed for the BS prior to joining Nuc

Med. I felt sorry for those who did not. After internship, they had to return to campus and finish their degree forgetting all that they learned from internship.

5. Learn the basic protocols for procedures performed.
6. I am very pleased with my on-campus education.
7. We had outdated equipment to train with, which didn't correlate with what we would be working with as technologists.
8. Needed newer equipment to practice on, more practice positioning and moving cameras.
9. Most areas have improved since I graduated in 1984. Improved equipment. Also, instructors who have current knowledge in the field are very important.
10. The chemistry department! I would have gone for a BS degree if it hadn't been for most of the chemistry department.
11. Camera capabilities, types of current procedures.
12. Everyday situations and keep enforcing radiation safety.
13. Physics portion -- teach it later in the program once you can understand why you are even looking at the equations.
14. I think it would be great to spend some rotation time in any local hospital (Reed City, Mecosta) during the 2nd or 3rd semester on campus; if nothing else, observation.
15. The transition to clinical practice could be improved. I'm not sure how to better prepare individuals for hospital experience.
16. Electives.
17. I would think the education system would benefit with cross training techniques for future techs. Also patient care form the patient's view and experience. When I left the work force in 2000, cross training and advanced patient care responsibilities began t take hold.
18. More on site student visits to hospitals and clinics.

The following comments were expressed in regards to the questions "Which areas of your clinical internship best prepared you for your current position?" and "Should any portion of the clinical internship be changed?":

1. The wide variety of procedures observed. Could observe and train in ultrasound also, if interested. My internship at St. Mary's in Grand Rapids provided general and cardiac nuclear medicine, laboratory, radioimmunoassay, nuclear pharmacy. I was able to communicate with other interns at Butterworth and Blodgett Hospitals as well as visits/exchange for a week or two at these other hospitals. Those without nuclear pharmacy could intern at Syncor radiopharmacy.
2. My internship occurred at an inner city hospital which allowed for extensive pathology i.e. positive scans to be viewed. Also the responsibility of functioning in the work force.
3. Students need to learn multiple different ways of scanning to same end. Learn analog, not just digital equipment.
4. I though U of M was a great clinical site. I also enjoyed visiting the VAMC. I wouldn't change a thing about my clinical.

5. My 2nd semester while on the techs was on maternity leave I HAD to be a working tech and I had to learn (fast) to rely on my own abilities.
6. Patient contact. Hands on portion. Make it mandatory to spend a couple days exploring other modalities and learn how and why certain other scans aid or interfere with our tests.
7. Internship was very good. I was prepared for my current job. I have more usable skills than other technologists who did not attend FSU.
8. Lack of support from Ferris when there are problems with interns. Ferris is pushing these students through without proper guidance.
9. Just having the hands on experience helped a lot.
10. Pace of work (very busy).
11. Hands on experience.
12. All of it! Spectrum Health – Butterworth Hospital in Grand Rapids. It was great and was best possible experience.
13. I was very fortunate to have had an excellent clinical site. I had experience with all facets of nuclear medicine (cardiac, therapy, pediatric, etc).
14. All of the venipuncture work and IV placement. Need to try to incorporate more PET work if possible.
15. Total hands on experience, especially working at good injection techniques. Nothing I can see should be changed.
16. Input from the clinical instructor on the hands on part of the job, and their insight into how to deal with patients.
17. "Working" full time at the hospital where I did my internship was a good way to learn all aspects of nuclear medicine at the time. It would have been nice though to have hospital work and classroom work intertwined. To do both at the same time would have brought a lot of things together for me. I know this isn't really possible since there are not a lot of hospitals around Big Rapids! That's the only limitation really.
18. My clinical internship was difficult, hard work and sometimes I felt like I was thrown to the wolves, just like real life in nuclear medicine. I think my clinical at Spectrum Downtown was top notch. The techs were very knowledgeable in NM.
19. Rotate through different hospitals because all hospitals use different equipment and have different protocols. Where you get a job may be totally different from your intern.
20. The more information – the better.
21. Hot lab, working with a lot of different radiopharmaceuticals, and knowing how to eluate a generator and making kits.
22. I had a great experience at U of M and wouldn't change anything.
23. The internship was extremely helpful for preparing a tech for regular work. Working right away, injecting patients, starting IVs (antecubital and hands), and collaborating with other techs and students is very important.
24. Hot lab rotation and clinical classes with techs. Using current cases to reinforce the topics.

In response to the question "Have you continued your education since leaving FSU? What are your plans in that area?" the following comments were gathered:

1. No. I may eventually go back for a BS in Health Care Systems Administration.
2. Yes. I recently received a Master's of Science in Administration with a Healthcare Services Concentration from Central Michigan University.
3. I have no plans to go back to school as I have a superb job.
4. I have not continued education – mainly because of call.
5. Unfortunately, no. Future plans are undecided until my small children are older.
6. No.
7. I would like to get my BS in Nuclear Medicine but haven't had time. It wouldn't change my pay but I would feel better about myself if I had a BS. On-line or correspondence would be helpful.
8. No continuing education except for CEUs.
9. No, none.
10. In California, CEUs are necessary for state licensing. I have no other plans in this area but to keep my license current.
11. Yes, I am currently working on my Bachelors in administration and want to continue to my masters.
12. Yes, I received a BS degree in Health Studies from Western Michigan University.
13. No.
14. No.
15. Continuing education credits for 12 – 15 CEUs per year.
16. No.
17. Leave nuclear medicine.
18. No, not in the medical field. Have taken classes in outside interests.
19. Yes, BS Business Administration at Ferris.
20. CEUs of course. Spanish in order to communicate with patients. I am contemplating going for my BS.
21. Yes, I'm currently pursuing a Bachelor of Science in Nursing. I plan to do critical care nursing in the future.
22. Limited classes towards BS.
23. I continued with seminar credits until my retirement in 2000. I have no plans at this time to return to the field.

These additional comments were written on the surveys:

1. My personal opinion – difficult gong from a year of "book work", then thrown into a clinical situation. What a student learned a year previous sometimes does not make the connection once you are in the real world. As I stated before, more on site visits and hands on experience. Due to FSU's location, it would be difficult to spend a week observing and doing clinical, and then back to book work. Also, many times there are "good students, bad techs". An individual may be an all A student but can't find a vein or has poor people skills. I was one of the not-so-good students, but I feel my skills are above average. I was one of those "bad student, good tech" types.

2. I came to realize that my fellow textbook "A" students struggled in the clinical hands on or real work environment situations. Perhaps a class or course that illustrates a day to day or hour to hour with a real work place would be of benefit. I also feel some instruction in working as a team player within the employment setting (i.e. coordinating scans with other diagnostic tests)...
3. Rotating through other institutions for 1 – 2 months at a time, not just observe for a few days. Make sure they can accomplish tasks, not pass because attendance.
4. I think a good exercise to do would be to have the students in the nuc med class shadow a nuc med tech early on in the program, just one day, either in a hospital or clinic setting. I think this would allow the information to sink in, early on, so they can be more aware of what they are getting themselves into.
5. Good internship sites. Please do not shorten the hours/days needed.
6. Learn more about camera operations. What certain problems on floods look like and how to connect them. Possibly recruit a service person from a camera company to come in once to go through this. Especially important for students going to find work at smaller institutions.
7. Be truthful (Julian Easter, Mr. Barnes, Ingrid Dudek) when wanting to continue education. These people were not truthful when inquiring about completing Bachelor's degree in Nuc Med after finishing internship. Be realistic with job pay rates starting out. Not all jobs in all areas of Michigan will start at $23.00.
8. It was a great experience and I really love the field and I am glad I am working in nuclear medicine. I still keep in tough with 3 out of 4 of the girls that I interned with at the U of M. We all still are working in nuc med.
9. Job shadowing prior to internship would be helpful.
10. None. I am proud to say I went to FSU. I have met many recent graduates from other schools and they are severely lacking in many areas. You were and are great, Miss Sheila.
11. Better student selection is always a "plus". Some students seem very immature and not ready for a professional career. I have been fortunate at Ingham to have excellent students.
12. When I was there, there was hardly any emphasis on PET. It would be good to incorporate PET/CT into the curriculum; out here PET cameras are going everywhere.
13. Many technologists (including myself) have told me how hard learning thyroid and renal physiology was. Making sure that students have a good, sound understanding of those, and other organs, would be beneficial. Learning good ethics is also important.
14. I am very happy/proud of the education I received at FSU in the Nuc Med program. I recommend FSU programs and the Nuc Med program often. I believe that Sheila's program is the best for Nuc Med. My career has not turned out the way I expected, but it's a good job, and my first priority is my patients. When I was a student, I had no idea how hard the work would be, but that's one of life's little surprises. Almost every manager and department head I have worked for say that I am an excellent tech, and I believe that is a reflection on Sheila's nuc program. Thank you, Sheila.

15. I've worked with students at both university and not at Aultman (we have our own program) and I think Ferris has the best program I've seen. Our students are doing clinicals while having class and they don't know the basic NM principles. Anyone can learn to operate a camera.
16. I feel Ferris has an excellent program and prepares its students very well. I suppose I would like students to be more aware of the "human" aspect. By human aspect I'm referring to respect for the individual patient. We sometimes get caught up in our technology and forget about the ramifications that this technology has on our patients. Their lives are turned upside down sometimes – granted we are trying to help our patients – but they don't always understand it. Because of the diseases we discover and track maybe students should be made more aware of this unfortunate side of Nuc Med and develop coping skills.
17. The fact that students no longer have to work to get their internship sites is a little disconcerting. Before it was competitive and we had to work harder to get the site we wanted.

Ferris State University
College of Allied Health Sciences
Department of Health Related Programs
Nuclear Medicine Technology Program

Survey of Graduates

What year did you graduate from Ferris State University?_____

Did you receive a B.S. or A.A.S. degree in Nuclear Medicine Technology?_____

Where are you currently employed?_____

_____

How long have you been employed at this institution?_____

What is your present position?_____

What was your starting salary?_____

What hours do you usually work?_____

Do you work evenings?	_____ Yes	_____ No	How frequently?_____
Do you work weekends?	_____ Yes	_____ No	How frequently?_____
Do you take call?	_____ Yes	_____ No	How frequently?_____

Where else have you worked as a Nuclear Medicine Technologist (NMT)?

Was it difficult to find employment as a NMT when you graduated? Please explain.

Which areas of your on-campus education best prepared you for work as a NMT?

Section Three: Surveys of Employers of Graduates

Surveys were mailed to approximately 65 employers of graduates. Employers are not routinely surveyed by the program. The program does, however, gather feedback on an annual basis from its Adjunct Clinical Instructors (ACIs). The ACIs are employers of the programs' graduates.

Survey of Employers of Graduates
Nuclear Medicine Technology Programs

Sixty-five hospitals in Michigan were randomly selected for the employer surveys. Fifteen surveys were returned for a 23% response rate. Total responses per item as well as a copy of the survey form are included.

Results

Seventy-seven percent (10/13) of the employers surveyed felt that Nuclear Medicine Technology graduates from Ferris State University were adequately prepared to assume their duties as nuclear medicine technologists. One hundred percent of the employers would hire another Ferris State University graduate from the program.

When asked if they are having difficulty hiring capable technologists within the past two years, 71% responded in the affirmative. Eighty-six percent would hire graduates with multiple competencies (i.e. nuclear medicine and radiology).

The following comments were gathered:

1. I have had the pleasure of working alongside of several Ferris grads in the course of my career. With only 1 exception, my experience has been positive.
2. Looking to fill two NM vacancies ASAP. Would like to know if any are available and when.
3. I have two FSU graduates. One is excellent, one is poor. Difficult for me to complete the survey due to the great gap in their abilities. Overall, the good outweighs the bad.
4. Four out of five NM techs at our facility are Ferris graduates and all have adapted well coming into our department.

NUCLEAR MEDICINE TECHNOLOGY PROGRAMS
DEPARTMENT OF HEALTH RELATED PROGRAMS
COLLEGE OF ALLIED HEALTH SCIENCES
FERRIS STATE UNIVERSITY

SURVEY OF EMPLOYERS OF GRADUATES

Do you currently have Ferris State University Nuclear Medicine Technology graduates employed at your institution? _79% (11/13)_ Yes _14% (2/13)_ No

If no, have you had Ferris State University Nuclear Medicine Technology graduates employed at your institution in the past? _50% (1/2)_ Yes _50% (1/2)_ No

In what capacities are (were) the graduates employed? (Check all that apply.)

_80% (12/15)____	Staff Nuclear Medicine Technologist, Full Time
_14% (_2/15)____	Staff Nuclear Medicine Technologist, Part Time
_0%_____	Staff Nuclear Medicine Technologist, On Call Only
_6% (1.15) _____	Staff Nuclear Medicine Technologist, Temporary
_0%_____	Staff Nuclear Medicine Technologist, Per Diem
_0%_____	Other:_____

Do you feel that the employees were adequately prepared to assume their duties?
__77% (10/13)_ Yes __23% (3/13)_ No

Please circle the response that best describes the employees overall:

1. Rate at which assigned tasks are completed.
   - A. From time of employment has completed assigned tasks quickly and often assists others. (86%, 12/14)
   - B. Slow to begin with but in a short time progressed to an adequate level of speed. (7%, 1/14)
   - C. Seldom finishes assigned tasks in a reasonable amount of time. (7%, 1/14)

2. Organization
   - A. Organizes work without waste of time. (86%, 12/14)
   - B. Performs some procedures with good organization, but has difficulty handling two or more tasks simultaneously. (7%, 1/14)
   - C. Wastes motion; neglects to think ahead; cannot perform in an organized fashion. (7%, 1/14)

3. Attitude toward change
   - A. Willingly learns new procedures. (79%, 11/14)
   - B. Avoids learning new procedures, and will try to change assignments with others to avoid contact with new developments. (7%, 1/14)
   - C. Reluctant to learn new procedures; thinks that only methods used at Ferris or on clinical internship are the right methods. (14%, 1/14)

4. Skills
   - A. Learns equipment with ease and confidence at first exposure. (79%, 11/14)
   - B. Appears unsure at first exposure to equipment, but soon develops ease in operation. (14%, 2/14)
   - C. Handles equipment with difficulty; has a high level of failure; needs to redo images or other problems. (7%, 1/14)

5. Orientation time
   A. Moved ahead with initiative after initial orientation to the department. (86%, 12/14)
   B. Needed some repetition of directions, but soon became familiar with the department. (7%, 1/14)
   C. Behaved like a stranger in the department and had to be shown repeatedly what to do and how to do it. (7%, 1/14)

6. Relationships with co-workers and professional colleagues
   A. Sensitive and considerate of the feelings of others; seeks opportunities to help others. (64%, 9/14)
   B. Is pleasant enough to others, but rarely offers to help. (29%, 4/14)
   C. Antagonizes and irritates those with whom he/she works. (7%, 1/14)

7. Leadership qualities
   A. Can successfully give as well as follow directions; shows potential. (86%, 12/14)
   B. Too timid to offer suggestions even if more capable than others. (7%, 1/14)
   C. Offers suggestions often, but his/her "know it all" attitude creates resentment. (7%, 1/14)

8. Confidence
   A. Approaches procedures with assurance and reports results with confidence. (86%, 12/14)
   B. Overconfident; tends to "skimp" on quality control, image parameters, etc. (0%, 0/14)
   C. Lacks confidences in his/her work. Checks results with others often. (14%, 2/14)

9. Initiative. Willingness and ability to function independently.
   A. Sees things to be done and acts without being specifically directed. (64%, 9/14)
   B. Checks with supervisor when done with work and asks for additional assignments. (7%, 1/14)
   C. Assumes responsibility for his/her own assignments/rotations but seldom assumes any for the overall function of the department. (29%, 4/14)

10. Judgment
   A. Recognizes discrepancies in work and proceeds to correct the difficulty. (79%, 11/14)
   B. Recognizes discrepancies in work and reports the problems to his/her supervisor. (7%, 1/14)
   C. Performs procedures mechanically with no attention to detail. (14%, 1/14)

11. Problem solving skills
   A. Recognizes problems and attempts solution in an organized and purposely manner. (79%, 11/14)
   B. Recognizes a problem but uses shotgun approach to solutions. (7%, 1/14)
   C. Fails to recognize problems. (14%, 2/14)

12. Interest in professional development
   A. Regularly participates in continuing education activities. (93%, 13/14)
   B. Rarely participates in continuing education and is not supportive of those that do. (7%, 1/14)
   C. Does not participate and actively discourages others from participating. (0%, 0/14)

13. Adherence to safety regulations
    A. Adheres strictly to federal, state, and department guidelines and regulations. (86%, 12/14)
    B. Adheres to guidelines and regulations when reminded; is careless about some areas of safety. (14%, 1/14)
    C. Extremely careless in the department and ridicules those who adhere to the regulations and guidelines. (0%, 0/14)

14. Tidiness
    A. Extremely neat; keeps everything clean and in proper place. (86%, 12/14)
    B. Keeps work area in a sloppy condition, but cleans up at the end of the day. (0%, 0/14)
    C. Keeps sloppy work area and fails to assume responsibility for clean up. (14%, 1/14)

Based on your experience with current and past employees, would you consider hiring another Ferris State University Nuclear Medicine Technology graduate?

__100% (14/14)__Yes __0% (0/14)__ No

Have you experienced difficulty in the last two years hiring capable Nuclear Medicine Technologists?

__71% (10/14)__Yes __29% (4/14)__No

Would you be interested in hiring graduates with multiple competencies (i.e. nuclear medicine and sonography, nuclear medicine and exercise physiology)?

__86% (12/14)__Yes __14% (2/14)__No

Please feel free to make any comments that you believe would be beneficial in evaluating and improving the Nuclear Medicine Technology Programs.

Thank you.

Please feel free to duplicate this survey if multiple employers/supervisors would like to participate. All responses are welcome and important to this survey process.

Section Four: Student Satisfaction Surveys of the NMT Program

Survey

Student satisfaction surveys were distributed to Nuclear Medicine Technology on-campus students in September 2002. One hundred percent of the students returned the surveys.

The survey form was designed to evaluate the student's perceived satisfaction with their educational experience to date at Ferris State University. The forms asked for responses to many areas including teaching methods, placement services, instructors, instructional materials and support services.

The nuclear medicine technology students are also surveyed at the end of each semester during internship. These surveys help the program evaluate the clinical experience. Those survey results are not included in this document. They are, however, included in the Joint Review Committee on Educational Programs in Nuclear Medicine Technology's self-study report.

Results

The questions regarding the Nuclear Medicine Technology Program (courses, objectives, teaching methods, related course, internship, and instructors) showed responses at an average of "Excellent".

Instructional equipment was rated at an average of "Excellent" as was instructional materials (textbooks and reference books).

Support services (tutoring, library resources, career planning, and placement services) responses averaged "Good".

The survey results by item are included in this section.

STUDENT PERCEPTIONS OF
FERRIS STATE UNIVERSITY'S
NUCLEAR MEDICINE TECHNOLOGY PROGRAMS

INSTRUCTIONS: Rate each item using the following guide.

E = **EXCELLENT** means nearly ideal; top 5 – 10%
G = **GOOD** is a strong rating; top one-third
A = **ACCEPTABLE** is average; the middle third
BE = **BELOW EXPECTATIONS** is only fair; bottom one-third
P = **POOR** is seriously inadequate; bottom 5 – 10%
DK = **DON'T KNOW**

Please Rate Each Item Below:	**E**	**G**	**A**	**BE**	**P**	**DK**
1.Courses in the NMT Program are: Available and conveniently located.	12	15	3	1	0	0
Based on realistic prerequisites.	11	17	1	0	0	0
2.Written objectives for courses in your program: Are available to students.	24	6	0	1	0	1
Describe what will be covered in the course.	20	8	1	0	0	1
3.Teaching methods, procedures and course content: Meet your occupational needs, interests and objectives.	14	10	4	0	0	1
Provide practice for developing job skills.	12	14	0	0	0	1
4.Related courses (i.e.English) are: Pertinent to occupational instruction.	9	11	9	0	0	2
Current and meaningful to you.	5	7	13	4	0	1
5.Internship is: Readily available at convenient locations.	7	12	9	1	0	1
Coordinated with faculty.	12	10	2	0	0	6
Considered by you to be a valuable introduction to a nuclear medicine field.	25	5	0	0	0	0
6.Career planning information or assistance: Meets your needs and interests.	8	14	4	2	1	1
Helps you make career decisions and choices.	4	15	9	1	0	1
7.Placement services are available to: Help you find employment opportunities.	4	0	2	1	1	22
Prepare you to apply for a job.	3	6	6	0	0	15
8.Instructors in the program: Know the subject matter and occupational requirements.	28	3	0	0	0	0
Are available to provide help when you need it.	11	8	10	1	1	0
Provide instruction so it is interesting and understandable.	10	16	4	1	0	0

9.Instructional support services (i.e. tutoring, FLITE) are: Available to meet your needs and interest.	7	14	5	1	1	3
Available to all students on an equal basis.	12	9	3	1	1	4
10.Instructional equipment is: Current and representative of industry.	15	10	0	0	0	6
In sufficient quantity to avoid long delays in use.	11	10	7	1	0	2
Current and in good condition.	15	14	0	0	0	2
11.Instructional materials (i.e. textbooks and reference books) are: Available and conveniently located for use as Needed.	12	13	4	0	0	2
Current and meaningful to the subject.	15	10	2	0	0	4
Not biased toward traditional sex roles.	20	7	1	0	0	3
Available at reasonable costs.	1	5	10	6	9	0

Section Five: Faculty Perception of the NMT Programs

The Nuclear Medicine Technology Program faculty member was given a perception survey. The survey was completed and the data compiled. It should be noted that there is only one faculty member currently in the program.

The survey instrument and data are attached. Comments from specific questions are provided below.

Comments:

3. Information from professional organizations are not readily available.

13. Adjunct Clinical Instructors are currently used as an advisory group by the program.

FACULTY PERCEPTIONS OF FERRIS STATE UNIVERSITY'S NUCLEAR MEDICINE TECHNOLOGY PROGRAM

INSTRUCTIONS: Rate each item using the following guide along with the explanations accompanying each question.

E = Excellent
G = Good
A = Acceptable
BE = Below Expectations
P = Poor
DK = Don't Know

Please Rate Each Item Below	E	G	A	BE	P	DK
1.Participation in Development of Program Excellent = Administrators and others involved in developing and revising the college plan for this program seek and respond to faculty, students and community input. Poor = Development of the program does not take into consideration needs or requirements outside of the immediate programmatic needs.		X				
2.Course Objectives Excellent = Objectives have been developed for the course in the NMT program and are used to plan and organize instruction. Poor = No objectives have been developed for the courses in NMT.	X					
3.Use of Information on Labor Market Needs Excellent = Current data on labor market needs and emerging trends in the job market are used in developing and evaluating the program. Poor = Labor market data is not used in planning or evaluation.		X				
4.Use of Joint Review Committee Standards Excellent = JRC standards are used in planning and evaluating this program and content of its courses. Poor = No recognition is given to JRC standards in planning and evaluating this program and content of its courses.	X					
5.Use of Student Follow-Up Information Excellent = Current follow-up on graduates and those who do not complete all of the program are consistently used in evaluating the program. Poor = Student follow-up information has not been used in evaluating this program.			X			

6.Relevance of Supportive Courses Excellent = Applicable supportive courses are relevant to program goals and current to the needs of the students. Poor = Supportive course content reflects no planned approach to meeting needs of students in this program.			X			
7.Provision for Work Experience/Internship Excellent = Ample opportunities are provided for related work experience and is available for students. Poor = Few opportunities provided.	X					
8. Program Availability and Accessibility Excellent = Students and potential students desiring enrollment in this program are identified through recruitment activities, treated equally in enrollment selection, and not discouraged by unrealistic prerequisites. The program is readily available and accessible at convenient times and locations. Poor = The program is not readily available or accessible to most students seeking enrollment. Improper discriminatory selection procedures are practiced.	X					
9. Efforts To Achieve a Bias Free Environment Excellent = Emphasis is given to assuring that no illegal or improper bias occurs in this program. Poor = Improper bias appears to be the norm.		X				
10. Provision For Program Advisement Excellent = Instructions in the program advise students on program and course selection. Registration procedures facilitate course selection and sequencing. Poor = Instructors make no provision for advising students on course and program selection.	X					
11. Provision For Career Planning and Guidance Excellent = Students in this program have ready access to career planning and guidance services. Poor = Little or no provision is made for career planning and guidance services for students enrolled in this program.	X					
12. Adequacy of Instructional Facilities Excellent = Instructional facilities and equipment meet the program objectives and student needs. Poor = Facilities and equipment for this program generally are restrictive, dysfunctional or overcrowded.		X				

13. Use of Advisory Committees Excellent = The advisory committee for this program is active and representative of the occupation. Poor = The advisory committee for this program is not representative of the occupation and is not functional.		X				
14. Perception of Students Who Go On For A B.S. Degree Excellent = NM students going on for a BS degree are some of the better students in CAHS. Poor = NM students going for a BS degree are generally poor students.	X					

Section Six: Advisory Committees' Surveys

The Nuclear Medicine Technology Program has utilized the Adjunct Clinical Instructors from the clinical affiliates as our advisory committee. The program is in the process of establishing a new and separate advisory committee. Members have been invited to serve and are from a wide spectrum of the nuclear medicine profession.

Since the establishment of the new advisory committee is in process (two members have accepted to date), a survey form was not sent.

The majority of the Adjunct Clinical Instructors at our clinical affiliates answered surveys as graduates of the program or as employers of graduates of the program. Their responses are of importance in these areas.

The minutes of the Adjunct Clinical Instructors' Meetings are available. These minutes document the valuable input the Adjunct Clinical Instructors have to the program.

Section Seven: Labor Market Analysis

Overview

The profession of Nuclear Medicine Technology is experiencing a shortage of qualified nuclear medicine technologists. This faster-than-average growth is due to increase in the number of middle-aged and elderly persons who are the primary users of diagnostic procedures. The shortage is also due to a decrease in the number of hospital based programs training nuclear medicine technologists. There are approximately 90 accredited programs in the United States and Puerto Rico.

Occupational Outlook Handbook

Nuclear medicine technologists held about 18,000 jobs in 2000. About two-thirds of all jobs were in hospitals. The remainder was in physicians' offices and clinics, including diagnostic imaging centers.

Employment of nuclear medicine technologists is expected to grow faster than the average for all occupations through the year 2010. Technological advances may increase the diagnostic uses of nuclear medicine and thus increase employment opportunities.

Median annual earnings of nuclear medicine technologists were $44,130 in 2000. The middle 50% earned between $38,150 and $52,190. The lowest 10% earned less tan $31,910 and the highest 10% earned more than %58,500. Median annual earnings of hospital based nuclear medicine technologists in 2000 were $44,000.

Nuclear Medicine Technology Certification Board

The Nuclear Medicine Technology Certification Board (NMTCB) conducted a survey in 2001. The results were published in their fall newsletter.

The following average annual salaries were reported:

Job Classification	Number of Respondents	Mean Annual Salary
General Imaging NMTs	2249	$47,526
Cardiac NMTs	608	$48,433
PET NMTs	84	$52,430
Research NMTs	47	$43,812
Self Employed NMTs	26	$71,035
Staff Services NMTs	96	$60,641

They also reported that 26.7% of nuclear medicine technologists have been in the field 0 – 5 years followed by 24.1% for 6 – 10 years and 14.9% for 11 – 15 years.

Michigan ranked 34th in salary with a mean annual salary of $44,733. Alaska ranked 1st with a mean annual salary of $57,710 and South Dakota was last with $37,666.

The total number of vacancies reported to the NMTCB was 3099. The percentage of respondents with one or more vacancies in their departments/clinics was 80.2%. There is an estimated vacancy rate of 12.5%.

advance for Radiologic Science Professionals

In the publication, advance for Radiologic Science Professionals, there are numerous positions listed for Nuclear Medicine Technologists. These positions are throughout the United States and represent a wide range of opportunities for graduates.

It should be noted that many hospitals and clinics do not perform a nationwide search for nuclear medicine technologists. They rely on local or regional newspapers and "word of mouth" advertising. Some hospitals and clinics employ recruiters to fill available positions.

Section Eight: Evaluation of Facilities and Equipment

The Nuclear Medicine Technology Programs laboratory facilities are located in the Victor F. Spathelf (VFS) Center for Allied Health in Rooms 100, 100A, 101 and 102. The labs occupy approximately 1800 square feet of space. VFS 100A is located within VFS 100 and is designated as the "Hot Lab". Radioactive materials are stored within this room which has restricted access.

VFS 100 contains primarily scintillation counters and auxiliary equipment. VFS 101 and 102 house gamma scintillation cameras, ECG monitors, computers and xenon delivery systems as well as auxiliary equipment.

Classroom instruction is provided within the VFS building. Students are encouraged to use the computer laboratory within the building.

The Department Head for Health Related Programs' office is located on the fourth floor of VFS and occupies approximately 200 square feet. The office of the faculty member occupies 100 square feet on the fourth floor of VFS. The faculty member has their own computer and printer. Adequate space is provided for confidential student advising.

The major pieces of scientific instrumentation dedicated to student use are two (2) gamma scintillation cameras with computer systems, one (1) gamma scintillation camera without a computer system, one (1) mobile gamma scintillation camera, one (1) computer display station, four (4) EG&G well counter systems, three (3) dose calibrators, three (3) well counter and uptake probe systems, four (4) ECG monitors, one (1) Cobra liquid scintillation counter and one (1) Xenon delivery system. Other equipment includes survey meters, I.V. arms, cardiac phantoms, thyroid phantoms, microscopes and thin layer chromatography systems.

The equipment and facilities must be adequate in order to ensure compliance with national and state standards (i.e. NRC, OSHA). Compliance with national and state standards is monitored by individuals and committees within the College of Allied Health Sciences. Nuclear Regulatory Commission (NRC) and State of Michigan Radiologic Health Division compliance is monitored by the FSU Radiation Safety Officer and the Radiation Safety Committee. OSHA compliance is monitored by the College of Allied Health Science's Safety Committee. MSDS sheets are stored in the Dean's Office within the College of Allied Health Sciences.

The equipment and facilities at Ferris State University as well as at each clinical affiliate must comply with the Joint Review Committee on Educational Programs in Nuclear Medicine Technology's Essentials and Guidelines.

The goal of the program is to introduce students to the clinical procedures being performed at hospitals and clinics today. The students need to be able to simulate the procedures they will be expected to perform during their clinical internship. The addition of "new" equipment would greatly enhance their didactic education. The Nuclear Medicine Technology Program depends upon vendors, hospitals, etc. for equipment and supply donations.

Section Nine: Curriculum Evaluation

The evaluation of curricula for the Nuclear Medicine Technology Programs was accomplished through discussion. The following areas were discussed:

1. Nuclear Medicine Technology Courses
2. Mathematics Courses
3. Science Courses
4. CAHS Core Curriculum Courses
5. Required courses in English, Medical Terminology, and General Education.

The Nuclear Medicine Technology Program has been discussing curriculum revision during the summer and fall semesters and hopes to submit these revisions for approval before fall semester 2003.

Nuclear Medicine Technology Courses

There was overall satisfaction with the Nuclear Medicine Technology courses. The faculty is especially pleased with the newest course, NUCM 140, Cross-Sectional Imaging. Since cross-sectional anatomy is used extensively in SPECT imaging in nuclear medicine as well as CT and MR, this course has been well received by students and affiliate site staff.

The faculty would like to add a one credit NUCM 100 course for the first semester of the program. This course would contain the course objectives of FSUS 100 as well as topics specific to the program. It would replace the FSUS 100 course mandatory for freshmen. All professional sequence students would have to enroll in this course.

Course objectives are clearly written for all the Nuclear Medicine Technology courses and are available to all faculty within the program. Course objectives, syllabi, etc are housed in the College of Allied Health Sciences' word processing office.

Mathematics Courses

Students in the Associate in Applied Science Degree program are required to successfully complete MATH 115, Intermediate Algebra. Students in the Bachelor of Science Degree program are required to complete MATH 120, Trigonometry as well.

The students need to have an understanding of problem-solving using computation, scientific notation, graphing, logarithms, and equations. MATH 115 fulfills these requirements to a degree. Program faculty, however, have noted that the Associate in Applied Science Degree students have more difficulty in logarithms and equations than do the Bachelor of Science Degree students who have had higher levels of mathematics.

Science Courses

Students in the Associate in Applied Science (AAS) Degree program are required to successfully complete the following science courses: BIOL 205 (Anatomy and Physiology) and CHEM 121 (General Chemistry). The program faculty feels that BIOL 205 fulfills the basic requirements for Nuclear Medicine Technology. It has recently come to the attention of the program that CHEM 121 will have a prerequisite of MATH 115. This is problematic. The students are currently taking MATH 115 and CHEM 121 concurrently. It will be difficult for students entering the program to complete MATH 115 prior to CHEM 121 especially freshmen. The program faculty is recommending CHEM 114 (Introduction to General Chemistry) instead. A change of curriculum will be submitted.

Students in the Bachelor of Science Degree program are required to complete the same courses as the AAS degree students plus the following: CHEM 214 (Fundamentals of Organic Chemistry) and an approved BIOL course. With the anticipated change of CHEM 121 to CHEM 114 in the AAS degree, CHEM 124 (Introduction to Organic Chemistry) will be recommended as a replacement for CHEM 214.

The program faculty feels that the courses mentioned above will fulfill the requirements of the field of Nuclear Medicine Technology.

CAHS Core Curriculum Courses

All students in the College of Allied Health Sciences are required to complete core curriculum courses pertinent to their program. The students in Nuclear Medicine Technology enroll in CCHS 101 (Orientation to Health Care), CCHS 102 (Safety Issues) and CCHS 103 (Health Care Skills). In addition to the CCHS courses, core curriculum states that students in the AAS degree program must demonstrate computer competency and acquire a letter grade of "C" or better in the following courses: ENGL 150, ENGL 250, and COMM 105 or 221. Bachelor of Science Degree students must also successfully complete ENGL 321.

The program faculty agrees that overall the content of the CCHS courses are good. It would be a recommendation of the program, however, to reduce the number of credit hours for these courses (i.e. CCHS 101 is currently 3 credits; reduce to at least 2 credits). Another recommendation would be to re-evaluate the content of CCHS 103. CPR, for example, would be beneficial to the students in the program.

Medical Terminology

All students in the program are required to complete MRIS 102, Orientation to Medical Terminology. This one credit course teaches students to divide medical terms into their component parts thus enabling the student to work out their meaning. MRIS 102 is of benefit to the program.

English Courses

Students in the AAS and BS degree programs complete ENGL 150 (English 1) and ENGL 250 (English 2). The BS degree students also are required to take ENGL 321 (Advanced Composition). ENGL 321 is a requirement for the CAHS core curriculum.

The program faculty would like to be able to substitute ENGL 311 (Advanced Technical Writing) for ENGL 321. Prior to core curriculum, this course was highly recommended by program faculty.

It is desirable to take an upper level English after the student has some experience in the field of nuclear medicine. The writing assignments dealing with their chosen profession are difficult to write without at least one course in that field. This class is seen by the program as beneficial.

Communications Courses

Students in the BS degree program are required to complete a 300+ level communications course as well as the course required for the AAS degree (COMM 105 or 221).

The program faculty would like to be able to substitute COMM 121 for COMM 105 or 221. Many transfer students entering the program have successfully completed COMM 121. It is difficult to explain to students (and their parents) why they have to enroll in another communications course.

The 300+ level communications course requirement for the BS degree came out of discussions with the Adjunct Clinical Instructors and from previous employers of graduates surveys. Many of these individuals stated that they would like to see the students graduate with better communication skills.

Statistics Course

Bachelor of Science Degree program students complete EHSM 315 (Epidemiology and Statistics). An understanding of statistics as they relate to the health care industry is of importance to the Nuclear Medicine Technology students. Statistics as they specifically relate to the field of Nuclear Medicine Technology are taught within the program and are of benefit to both the AAS and BS degree students.

Management Courses

HCSA 335 (Supervisory Practices in Health Care) is required of all BS Degree program students. This course allows students to understand hospital and departmental management issues. Although most students' first jobs are as Staff Nuclear Medicine Technologists, there is the potential to become supervisor or chief technologist after a few years of experience.

General Education Courses

There was overall satisfaction with the general education courses. The program faculty agrees that Biomedical Ethics (HUMN 220 or HUMN 320) should be a requirement rather than a recommendation to students. Whether able to do this or not will need to be discussed in greater detail.

Also under discussion is whether to require a foreign language. With the changing population, the knowledge of a foreign language is seen as beneficial.

The program faculty also agreed that recommended courses should be listed at the bottom of the course worksheets to aid the students in their choices.

Section Ten: Enrollment Trends Over the Past Five Years

Enrollment in the Nuclear Medicine Technology Programs is strong and is expected to continue to be so. The program usually is "full" for the following fall semester before December of the prior year. There is currently a "wait list" for admission to the programs. Students waiting for admission to the program are considered Pre-Nuclear Medicine.

Although the enrollment is strong, the program faculty continues to educate high school and college students regarding nuclear medicine technology. High school visits on career days, inviting high school chemistry classes to simulated lab sessions, tours, and presentations have been routinely done during the past several years.

Retention is also important to the program. The faculty maintains an interest in all students, both during didactic and clinical courses. Although there is not formal SLA at this time, the small number of students in the program allows the faculty to monitor potential problems. The excellent adjunct clinical instructors at our affiliate sites are also relied upon for retention purposes.

The Nuclear Medicine Technology Programs have produced the following number of graduates in recent years:

Graduates	AY 96/97	AY 97/98	AY 98/99	AY 99/00	AY 00/01
BS	11	9	13	12	5
AAS	18	22	17	17	13
Total	29	31	30	29	18

Section Eleven: Program Productivity/Costs

The productivity and costs data below is derived from documentation provided by the Office of Institutional Research & Testing and is the most current data available (Fall 1997 – Winter 2002).

Student Credit Hours

Year	Summer	Fall	Winter	F + W
1997-98	94	557	458	1015
1998-99	110	632	515	1147
1999-00	82	505	443	948

Full Time Equated Faculty (FTEF)

Year	Summer	Fall	Winter	F + W
1997-98	1	2	2	2
1998-99	1	2	2	2
1999-00	1	2	2	2

Student Credit Hours/FTEF

Year	Summer	Fall	Winter	F + W
1997-98	94	278.5	229.0	507.5
1998-99	110	316.0	257.5	573.5
1999-00	82	252.5	221.5	474.0

In the ranked listing for Student Credit Hours / Full Time Equated Faculty (aggregated by course prefix) for Fall + Winter Semesters 2001 – 2002, the Nuclear Medicine Technology Programs were ranked as number 64 of all programs.

Personnel

The Nuclear Medicine Technology Program is currently comprised of one full-time tenured faculty member. There is one full-time tenure track position open. This position was vacated in May 2002. The program and the university have advertised nationally and one qualified candidate has applied. Due to the shortage of nuclear medicine technologists nationally and the lower pay in academics, recruitment has been difficult.

One of the faculty members in the program acts as the program coordinator.

The program also has twenty-two adjunct clinical instructors who work with the Nuclear Medicine Technology interns at the clinical sites. The program is fortunate to have these

volunteers that provide the daily supervision of the interns throughout their clinical education.

Financial

Expenditures*	FY 97	FY 98	FY 99	FY 00	FY 01
Supply & Expense	$16.564	$16,140	$15,447	$14,211	$18,675
Equipment**	0	0	0	0	0
Gifts & Grants	0	0	0	0	$100

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

The Nuclear Medicine Technology Programs depend upon the donation of equipment and supplies by hospitals and radiopharmaceutical companies. Funding is also provided through Vocational Education grants and alumni contributions.

Section Twelve: Conclusions

The results of the surveys of the employers of graduates, students, faculty, and graduates have provided useful information that can be utilized by the Nuclear Medicine Technology Program. The following conclusions have been reached:

Curriculum

1. The Bachelor of Science Degree program needs to be revised to reflect the needs of working technologists.
2. The courses of the most benefit, other than Nuclear Medicine Technology courses, as indicated by the surveys are medical terminology and anatomy and physiology.
3. Of the nuclear medicine technology courses, the summer semester courses (NUCM 135 and NUCM 140) are seen to be of the most benefit to the student.
4. Skills such as venipuncture, patient positioning and patient care were listed as important to graduates.

Program Faculty

1. Program faculty feels that the use of student follow-up information is below expectations.
2. The tenure track faculty position needs to be filled as quickly as possible. It is extremely difficulty for one tenure track faculty member to maintain the program.

Facilities and Equipment

1. Donations of equipment and supplies are crucial to the continued success of the program.
2. Gamma scintillation cameras will need to be replaced within a five year time period.
3. The expansion of laboratory space during the last several years has reduced accidents, etc during student lab sessions.

Students

1. Enrollment is currently strong. There are, however, concerns regarding Pre-Nuclear Medicine students. The program faculty would like to retain these students and make sure they are using their time wisely while waiting to enter the program.
2. Surveys of students and graduates indicate they are particularly pleased with the clinical portion of their education.

Other Conclusions

1. Employment opportunities are extremely good for graduates.
2. The Adjunct Clinical Instructors are valuable members of the program.
3. The new Advisory Committee is looked forward to as a source of valuable information regarding current trends in Nuclear Medicine Technology.
4. Registry/licensure pass rates are excellent (90% + for the past five years).

Section Thirteen: Recommendations

The Nuclear Medicine Technology (NMT) Program Review Panel would like to propose the following recommendations:

1. The NMT programs need to implement and maintain an improved system for surveying graduates and employers of graduates.

2. The NMT program needs to utilize the new Advisory Committee as a tool for program planning.

3. The Bachelor of Science Degree curriculum needs revision to reflect the needs of the nuclear medicine technology community.

4. The NMT program should continue to actively seek donations of equipment and supplies.

Program Review Panel Evaluation Form

(PRP: complete this form and include with your report)

Program: Nuclear Medicine Technology

Instructions: Circle the number which most closely describes t he program you are evaluating.

1. Student Perception of Instruction **Average Score** 4.5

5 4 3 2 1

Currently enrolled students rate instructional effectiveness as extremely high.

Currently enrolled students rate the instructional effectiveness as below average.

2. Student Satisfaction with Program **Average Score** 4

5 4 3 2 1

Currently enrolled students are very satisfied with the program faculty, equipment, facilities, and curriculum.

Currently enrolled students are not satisfied with program faculty, equipment, facilities, or curriculum.

3. Advisory Committee Perceptions of Program **Average Score** NA

5 4 3 2 1

Advisory committee members perceive the program curriculum, facilities, and equipment to be of the highest quality.

Advisory committee members perceive the program curriculum, facilities, and equipment needs improvement.

4. Demand for Graduates **Average Score** 5

5 4 3 2 1

Graduates easily find employment in field.

Graduates are sometimes forced to find positions out of their field.

5 4 3 2 1

5. Use of Information on Labor Market **Average Score** 4

The faculty and administrators use current data on labor market needs and emerging trends in job openings to systematically develop and evaluate the program.

The faculty and administrators do not use labor market data in planning or evaluating the program.

Program Review Panel Evaluation Form (page 2)

6. Use of Profession/Industry Standards **Average Score** 4.5

5 4 3 2 1

Profession/industry standards (such as licensing, certification, accreditation) are consistently used in planning and evaluating this program and content of its courses.

Little or no recognition is given to specific profession/industry standards in planning and evaluating this program.

7. Use of Student Follow-up Information **Average Score** 3

5 4 3 2 1

Current follow-up data on completers and leavers are consistently and systematically used in evaluating this program.

Student follow-up information has not been collected for use in evaluating this program.

8. Relevance of Supportive Courses **Average Score** 4

5 4 3 2 1

Applicable supportive courses are closely coordinated with this program and are kept relevant to program goals and current to the needs of students.

Supportive course content reflects no planned approach to meeting needs of students in this program.

9. Qualifications of Administrators and Supervisors **Average Score** 4

5 4 3 2 1

All persons responsible for directing and coordinating this program demonstrate a high level of administrative ability.

Persons responsible for directing and coordinating this program have little administrative training and experience.

10. Instructional Staffing **Average Score** 3

5 4 3 2 1

Instructional staffing for this program is sufficient to permit optimum program effectiveness.

Staffing is inadequate to meet the needs of this program effectively.

Program Review Panel Evaluation Form (page 3)

11. Facilities Average Score 5

5 4 3 2 1

Present facilities are sufficient to support a high quality program.

Present facilities are a major problem for program quality.

12. Scheduling of Instructional Facilities Average Score 5

5 4 3 2 1

Scheduling of facilities and equipment for this program is planned to maximize use and be consistent with quality instruction.

Facilities and equipment for this are significantly under-or-over scheduled.

13. Equipment Average Score 4.5

5 4 3 2 1

Present equipment is sufficient to support a high quality program.

Present equipment is not adequate and represents a threat to program quality.

14. Adaption of Instruction Average Score 5

5 4 3 2 1

Instruction in all courses required for this program recognizes and responds to individual student interests, learning styles, skills, and abilities through a variety of instructional methods (such as, small group or individualized instruction, laboratory or "hands on" experiences, credit by examination).

Instructional approaches in this program do no consider individual student differences.

15. Adequate and Availability of Instructional Materials and Supplies Average Score 4

5 4 3 2 1

Faculty rate that the instructional materials and supplies as being readily available and in sufficient quantity to support quality instruction.

Faculty rate that the instructional materials are limited in amount, generally outdated, and lack relevance to program and student needs.

Appendix One: Curricula Vitae

The curricula vitae for the Department Head of Health Related Programs and the faculty of the Nuclear Medicine Technology Programs are included in this appendix.

JULIAN F. EASTER
17260 Valley Drive
Big Rapids, MI 49307-9523
easterj@ferris.edu

Home (231) 796-1650
Work (231) 591-2261

SUMMARY:

Over 20 years of progressively responsible positions in health care. Enjoy patient care and didactic duties. Good combination of practical and theoretical experience.
Motivated. Hard working. Well organized.

EDUCATION:

Western Michigan University, Kalamazoo, Michigan
Doctoral Degree Program, Fall, 1999
Anticipated graduation, May, 2003
Education Administration and Supervision – Higher Education

Pittsburgh State University, Pittsburgh, Kansas
Master of Science Degree: 1986
Major: Community College Teaching

Biosystems Institute, Tempe, Arizona, 1980-1981
Graduate AMA accredited Respiratory Therapist Program

University of Notre Dame, Notre Dame, Indiana, 1970-1974
Bachelor of Arts Degree in Music Education

Lorain Catholic High School, Lorain, Ohio, 1966-1970
Graduate

PROFESSIONAL CERTIFICATION:

Registered Respiratory Therapist (RRT) – June, 1983
Certified Respiratory Therapy Technician (CRTT) – June, 1982

PROFESSIONAL AFFILIATIONS:

American Association for Respiratory Care
National Board for Respiratory Care
Michigan Society for Respiratory Care

PROFESSIONAL EXPERIENCE:

Ferris State University, Big Rapids, Michigan
Department Head, Health Related Programs, May 1992 – Present

Responsible for the administrative management of the Respiratory Care, Radiography, Nuclear Medicine, Clinical Laboratory Sciences, and Opticianry programs.

Program Director, Respiratory Care, August, 1991 – Present

Responsible for the management of the Respiratory Care program. Duties include supervising of personnel and program/curriculum development.

Firelands College, Huron, Ohio
Director of Clinical Education, August, 1988 – July 1991
Responsible for supervising the clinical instruction of the Respiratory Care students. Assist in didactic/lab instruction. Assist the Program Director with program and curriculum development.

JE:10/14/02
cad:RESUME

PROFESSIONAL EXPERIENCE: (cont)

Labette County Medical Center, Parsons, Kansas
Director of Respiratory Care, July 1985 – August, 1988
Responsible for managing the Respiratory Care Department and formal training programs for students, nursing personnel, and medical staff.

Labette Community College, Parsons, Kansas
Didactic/Clinical Instructor, July 1983 – July 1985
Primary Instructor of the technician program. Assisted in teaching advanced respiratory therapy theory in the therapist program. Extensive involvement in program and curriculum development for the Joint Review Committee for Respiratory Therapy Education Accreditation.

Biosystems Institute, Tempe, Arizona
Didactic/Clinical Instructor, February 1981 – June 1983
Served as didactic instructor teaching the basic sciences, math, pharmacology, EKG, basic and advanced theory in the technician and therapist program.

Primary instructor of five month accelerated therapist program.

As a clinical instructor, worked with students supervising and instructing them on practical applications of RT techniques. Served as a clinical evaluator of students in the external technician and therapist programs. Assisted in program development.

St. Joseph Hospital of Phoenix Arizona
Staff technician (part-time) November 1980 – February 1981
Performed general and critical care duties.

Central Michigan Community Hospital, Mt. Pleasant, MI
Staff Technician, January 1978 – September 1980
Responsibilities in general and critical care. Performed basic pulmonary function testing, basic cardiography, and a full range of respiratory technician procedures.

RELATED PROFESSIONAL EXPERIENCE:

American Heart Association of Michigan, Mecosta County, County Division
Board Member – 1992-1994

Michigan Society for Respiratory Care
Chairman – Awards and Scholarships Committee – 1995-1996

Sandusky/Medical College of Ohio Health Education

Committee Advisory Board Member – 1990-91

Easter Seal Society of Northwest Ohio Board of Trustees – 1989-91

American Lung Association of Ohio's South Shore Board of Trustees – 1990-91

PROFESSIONAL EXPERIENCE: (cont)

Ohio Consortium for Blacks in Higher Education
State Treasurer – 1989-91

President, Kansas Respiratory Care Society (Section VIII) – 1986-1987

Chairman of Advisory Board for the Labette Community College Respiratory Care Program – 1985-1988

National Board of Respiratory Care Entry Level and Advanced Practitioner Examinations Item Writer – 1985-Present

Clinical Facilitator for "Freedom From Smoking" clinics sponsored by the American Lung Association

PERSONAL:

Birthdate: November 28, 1952 - Lorain, Ohio
Health: Excellent
Marital Status: Married
Children: Four

REFERENCES:

Available on request.

September, 2002

CURRICULUM VITAE

PERSONAL DATA:

Name:	Sheila A. Squicciarini, M.S., CNMT
Birthdate:	January 31, 1960
Marital Status:	Married
Spouse's Name:	Thomas G. Squicciarini
Child's Name:	Laura, 1989

EDUCATION:

High School:	Evart Public High School, Evart, Michigan, 1974 – 1978
College:	Ferris State University, Big Rapids, Michigan, 1996 – 2001 Master of Science Degree in Career and Technical Education, Administrative Option
	Western Michigan University, Kalamazoo, Michigan, 1992 – 1994 Eighteen credits toward Master of Science Degree in Public Administration
	Ferris State University, Big Rapids, Michigan, 1982 – 1984 Bachelor of Science Degree in Nuclear Medicine Technology
	Northwestern Michigan College, Traverse City, Michigan, 1979 – 1981 Associate Science Degree in Dental Assisting

TRAINING:

Internship	St. Mary's Health Services, Department of Nuclear Medicine, Grand Rapids, Michigan, 1983 – 1984

POSITIONS HELD:

1994 – Present	Assistant Professor, Nuclear Medicine Technology Programs, Department of Health Related Programs, College of Allied Health Sciences, Ferris State University, Big Rapids, Michigan.
1994 – Present	Program Coordinator, Nuclear Medicine Technology Programs, Department of Health Related Programs, College of Allied Health Sciences, Ferris State University, Big Rapids, Michigan.
1994 – 1996	Clinical Coordinator, Nuclear Medicine Technology Programs, Department of Health Related Programs, College of Allied Health Sciences, Ferris State University, Big Rapids, Michigan.
1995 – May 2000	Radiation Safety Officer, Ferris State University, Big Rapids, Michigan.

POSITIONS HELD: (con't)

1990 – 1994	Supervisor, Department of Nuclear Medicine, Diagnostic Imaging Services, Blodgett Memorial Medical Center (currently Spectrum Health East), Grand Rapids, Michigan.
1990 – 1994	Adjunct Clinical Instructor, Nuclear Medicine Technology Programs at Ferris State University, Blodgett Memorial Medical Center, Grand Rapids, Michigan.
1985 – 1990	Clinical Coordinator, Cardiovascular Research, Cardiovascular Nuclear Medicine, Department of Internal Medicine, Division of Nuclear Medicine, University of Michigan Hospitals, Ann Arbor, Michigan.
1984 – 1985	Senior Clinical Nuclear Medicine Technologist, Department of Nuclear Medicine, Upstate Medical Center, State University of New York, Syracuse, New York.

CERTIFICATION/LICENSURE:

1984	The American Registry of Radiologic Technologists
1990	Nuclear Medicine Technology Certification Board

MEMBERSHIPS IN PROFESSIONAL SOCIETIES:

1983-1996, 2001	Member, The Society of Nuclear Medicine
1983-1996, 2001	Member, Central Chapter, The Society of Nuclear Medicine
1990-1996, 2001	Member, Associate and Technical Affiliates of Western Michigan, The Society of Nuclear Medicine
1985-1990	Member, Southeastern Michigan Technologist Association, The Society of Nuclear Medicine

SELECTED PROFESSIONAL APPOINTMENTS & ELECTED POSITIONS:

Ferris State University:

November 2001 – Present	Chair, Program Review Panel, Nuclear Medicine Technology Program, College of Allied Health Sciences
August 2001 – Present	Member, Instructional Resources Committee, College of Allied Health Sciences
May 2001 – Present	Member, History Commemorative Task Force, Ferris State University
August 2000 – Present	Member, Tenure Committee, David Zobeck, Respiratory Care Program, College of Allied Health Sciences, Ferris State University
August 2001 – May 2002	Secretary, Substance Abuse Committee, Ferris State University
August 2000 – May 2002	Member, Substance Abuse Task Force, Ferris State University
August 2000 – May 2002	Chair, Tenure Committee, Debra Garza, Nuclear Medicine Technology Program, College of Allied Health Sciences, Ferris State University
August 2000 – May 2002	Mentor, Debra Garza, Nuclear Medicine Technology Program, College of Allied Health Sciences, Ferris State University

PROFESSIONAL APPOINTMENTS. . . (con't)

Ferris State University:

May – July 2000	Chair, Faculty Search Committee, Nuclear Medicine Technology Position, College of Allied Health Sciences
Sept. 1999 – May 2000	Member, CCHS 103 Core Curriculum Committee, College of Allied Health Sciences
Sept. 1999 – May 2000	Secretary, Faculty Research Committee, Ferris State University
Sept. 1998 – May 2000	Member, CCHS 102 Core Curriculum Committee, College of Allied Health Sciences
Sept. 1997 – May 2000	Member, Core Curriculum Committee, College of Allied Health Sciences
Aug. 1997 – Aug. 1998	Member, Clinical Core Curriculum Committee, College of Allied Health Sciences
August 1997 – May 2001	Elected, Academic Senate, Ferris State University
August 1997 – May 1999	Member, Academic Senate Charter Revision Committee
May – July 1998	Member, Faculty Search Committee, Respiratory Care Position, College of Allied Health Sciences
August 1997 – July 1998	Mentor, Vicki Tedhams, Respiratory Care Temporary Faculty, College of Allied Health Sciences
August 1997 – May 2001	Member, Academic Senate Elections Committee
Aug. 1996 – Aug. 1997	Chair, Program Review Panel, Nuclear Medicine Technology Program, College of Allied Health Sciences
August 1996 – May 2000	Member, Faculty Research Committee, Ferris State University
August 1996 – May 2000	Ex-Officio, Health and Safety Committee, College of Allied Health Sciences
May – July 1996	Member, Faculty Search Committee, Radiography Position, College of Allied Health Sciences
August 1995 – August 2001	Member, Radiation Safety Committee, Ferris State University
Jan. 1995 – May 1996	Member, Radiation Users Group, College of Allied Health Sciences
Nov. 1994 – May 1996	Member, Recruitment and Retention Committee, College of Allied Health Sciences
August 1994 – Present	Advisor, Ferris Nuclear Medicine Association, College of Allied Health Sciences

Nuclear Medicine Technology Certification Board:

January 2002 – Present	Elected, Board of Directors
January 2002 – Present	Appointed, Specialty Exam (Cardiac) Committee
January 2002 – Present	Appointed, Examination Committee
January 2002 – Present	Appointed, Finance Committee
January 2002 – Present	Appointed, Task Analysis Committee
January 2002 – Present	Appointed, Radiation Safety Subgroup

PROFESSIONAL APPOINTMENTS. . . (con't)

The Society of Nuclear Medicine:

March 6, 1996	Appointed, Program Coordinator, Central Chapter, The Society of Nuclear Medicine, Symposium entitled "Radiation Safety: Guidelines and Regulations", Ferris State University, Big Rapids, Michigan
April 1994 – March 1995	Elected, President, Central Chapter, The Society of Nuclear Medicine
March 1993 – March 1996	Appointed, Publications Committee, Central Chapter, The Society of Nuclear Medicine
March 1993 – March 1996	Appointed, Continuing Education Committee, Central Chapter, The Society of Nuclear Medicine
March 1993 – April 1994	Appointed, Board of Governors, Central Chapter, The Society of Nuclear Medicine
March 1993 – April 1994	Elected, President-Elect, Central Chapter, The Society of Nuclear Medicine
March 1993 – Jan. 1994	Elected, President, Associates and Technical Affiliates of Western Michigan, The Society of Nuclear Medicine
April 17, 1993	Appointed, Program Coordinator, Central Chapter, The Society of Nuclear Medicine, Symposium entitled "Tumor Imaging", Blodgett Memorial Medical Center, Grand Rapids, Michigan
March 1992 – March 1993	Elected, Secretary, Central Chapter, The Society of Nuclear Medicine
May 11, 1991	Appointed, Program Coordinator, Central Chapter, The Society of Nuclear Medicine, Symposium entitled "Cardiovascular Nuclear Medicine Puts a Glow in Your Heart: An Update on Cardiac Nuclear Medicine", Blodgett Memorial Medical Center, Grand Rapids, Michigan
March 1991 – March 1992	Elected, By-Laws Committee, Central Chapter, The Society of Nuclear Medicine

Other:

1997 – Present	Expert Witness, Oakland County, Michigan
July – August 1994	Radiation Safety Consultant, Grand Valley Cardiology Specialists, Grand Rapids, Michigan
February – August 1994	Consultant (set-up, implementation, and development of Nuclear Cardiology Program), Grand Valley Cardiology Specialists, Grand Rapids, Michigan
April – August 1994	Member, REACT Team, Radiation Disaster Plan, Blodgett Memorial Medical Center, Grand Rapids, Michigan
August 1992 – Jan. 1994	Member, Hazardous Materials Task Force, Blodgett Memorial Medical Center, Grand Rapids, Michigan
August 1992 – Jan. 1994	Member, Communications Subcommittee, Hazardous Materials Task Force, Blodgett Memorial Medical Center, Grand Rapids, Michigan
July 1990 – August 194	Chair, Radiation Safety Committee, Blodgett Memorial Medical Center, Grand Rapids, Michigan

AWARDS AND RECOGNITION:

April 2002	Distinguished Teacher Award, Ferris State University
October 2001	Member, Health Care Delegation, Visited Beijing, China
May 2001	Marshall, Commencement, Ferris State University

COMMUNITY SERVICE/INVOLVEMENT:

August 2002 – Present	Mentor, Michael Lynn Hannick, Research Project, 10th grader from Big Rapids High School attending Math, Science, and Technology Center, Ferris State University, Big Rapids, Michigan.
February 8, 2002	Judge, Regional HOSA Competition, Ferris State University, Big Rapids, Michigan
January 2002	Presentation, "China", Seventh Grade Class, Big Rapids Middle School, Big Rapids, Michigan
July 2001 – January 2002	Mentor, Meghan Wilkinson, Research Project, 10th Grader from Morley-Stanwood High School attending the Math, Science & Technology Center, Ferris State University, Big Rapids, Michigan
June 17, 2001	Mistress of Ceremonies, Janine School of Dance Recital, Williams Auditorium, Big Rapids, Michigan
May 2001 – January 2002	Secretary, STAGE-M Community Theater Board of Directors, Big Rapids, Michigan
March 2001	Cast Member, "The Desk Set", STAGE-M Community Theater, Big Rapids, Michigan
October 2000	Cast Member and Publicity Director, "The Prime of Miss Jean Brodie", STAGE-M Community Theater, Big Rapids, Michigan
Sept. 2000 – March 2001	Mentor, Christina Malone, Research Project, 10th Grader from Big Rapids High School attending the Math, Science & Technology Center, Ferris State University, Big Rapids, Michigan. (Project won an award presented by the U.S. Army Engineers.)
September 2000	Team Member, Relay for Life, Big Rapids, Michigan
August 2000 – Jan. 2002	Elected Member, STAGE-M Community Theater Board of Directors, Big Rapids, Michigan
June – August 2000	Cast Member, STAGE-M Community Theater, "Gypsy", Big Rapids, Michigan
February 2000	Presentation, "Radiation", Fifth Grade Class, Brookside Elementary School, Big Rapids, Michigan
September 1999	Team Member, Relay for Life, Big Rapids, Michigan
Nov. 1998 – March 1999	Coach, Odyssey of the Mind Team, Brookside Elementary School, Big Rapids, Michigan
September 1998	Team Member, Relay for Life, Big Rapids, Michigan
Nov. 1997 – March 1998	Coach, Odyssey of the Mind Team, Brookside and Riverview Elementary Schools, Big Rapids, Michigan
January 22, 1998	Presentation, "The Heart", Third Grade Class, Brookside Elementary School, Big Rapids, Michigan
May 1997 – May 2000	Member, American Heart Association Board of Directors, Mecosta County

COMMUNITY SERVICE/INVOLVEMENT: (con't)

March 1997	Judge, Odyssey of the Mind, Regional Competition, Style Category, Fremont, Michigan
Jan. 1995 – Jan. 1996	Elected, Secretary, Alumni Association Board of Directors, College of Allied Health Sciences, Ferris State University
August 1994 – Present	Volunteer, Solicitor, The United Way Campaign Fund, Ferris State University
October 4, 1994	Volunteer, College of Allied Health Sciences Phon-a-thon, Ferris State University
July 1992 – January 1994	Member, All University Alumni Association Board of Directors, Ferris State University
Jan. 1992 – Jan. 1995	Elected, Vice President, Alumni Association Board of Directors, College of Allied Health Sciences, Ferris State University
Jan. 1991 – Jan. 1996	Member, Alumni Association Board of Directors, College of Allied Health Sciences, Ferris State University
1990 – 1994	Volunteer, Campaign Consultant, The United Way Campaign Fund, Blodgett Memorial Medical Center, Grand Rapids, Michigan

SELECTED RECRUITMENT AND RETENTION ACTIVITIES FOR FERRIS STATE UNIVERSITY:

1994 – Present	Numerous tours and workshops including CAHS Dawg Days
1999, 2000	HOSA Conference
October 3, 1997	Career Focus
Nov. 12, 1996	Career Exposure Day
October 24, 1996	Technical Conference
1996 – 1999	Autumn Adventure
May 8, 1996	Evart Middle School/High School Career Day, Evart, Michigan
January 25, 1996	Mecosta/Osceola Alternative Education Tours
1994 – Present	Junior/Senior Day

SELECTED CONTINUING EDUCATION:

1990 – Present	Numerous ATAWM Meetings
1994 – Present	Numerous lectures and roundtable discussions at Ferris State University
February 24, 2001	Attended SEMATA's Continuing Education Seminar entitled, "Seminar 2001: Nuclear Medicine in the 21st Century", Farmington Hills, Michigan
April 14-16, 2000	Attended Central Chapter Spring Meeting entitled, "Endocrinology in 2000", Dearborn, Michigan
April 17-19, 1998	Attended Central Chapter Spring Meeting entitled, "Cardiac Nuclear Medicine: Expanding its Clinical Usefulness", Oak Brook, Illinois
March 28, 1998	Attended Central Chapter Continuing Education Road Show entitled, "Patient Care Skills", St. Mary's Health Services, Grand Rapids, Michigan
November 1997	Attended RSNA Annual Meeting, Chicago, Illinois
April 12-14, 1997	Attended Central Chapter Spring Meeting entitled, "Computer and Quantitation in Nuclear Medicine", Chicago, Illinois
March 27, 1997	Attended "Health Professions Education Futures Conference", Ferris State University, Big Rapids, Michigan

SELECTED CONTINUING EDUCATION: (con't)

March 22, 1997	Attended Central Chapter Continuing Education Road Show entitled, "Oncology Update", Munson Medical Center, Traverse City, Michigan
October 5, 1996	Attended MSRT District #2 Educational Conference entitled, "Continuing Growth in a Multi Imaging Profession", Foote Hospital, Jackson, Michigan
March 16, 1996	Attended Central Chapter Continuing Education Road Show entitled, "Radiation Safety Guidelines and Regulations Update", Ferris State University, Big Rapids, Michigan
July 20-22, 1995	Certificate of Attendance, "Principles of Clinical Instruction for Educators in Radiological Sciences", Association of Educators in Radiological Sciences, Inc., and the Mayo Radiography Programs, Phoenix, Arizona
April 22, 1995	Attended Central Chapter Continuing Education Road Show entitled, "Artifacts and Corrective Actions", St. Mary's Health Services, Grand Rapids, Michigan
March 17-19, 1995	Attended Central Chapter Spring Meeting entitled, "Horizons in Nuclear Medicine", Marriott Society Center, Cleveland, Ohio
August 1995	Certificate of Completion, Coaching and Team building Skills for Managers and Supervisors, Grand Rapids, Michigan
Sept. 30-Oct. 2, 1994	Attended Central Chapter Fall meeting entitled, "Oncology 1994: Specialists Working Together", Chicago, Illinois
November 1993	Certificate of Completion, Management Fundamentals, American Healthcare Radiology Administrators, Kodak Eastman, Grand Rapids, Michigan
April 1993	Completed, Drug-Free Work Place Training, Grand Rapids, Michigan
April 1993	Certificate of Completion, Diversity Training, Grand Rapids, Michigan
March 1993	Certificate of Completion, Franklin's Project Management Seminar, Lansing, Michigan
November 1992	Certificate of Completion, OSHA's Hazard Communication Standard, Grand Rapids, Michigan
May 1992	Certificate of Completion, Interaction Management Program, Grand Rapids, Michigan
January-May 1992	Certificate of Completion, Supervising for Employee Excellence Program, Grand Rapids, Michigan
September 1991	Certificate of Completion, Franklin's Time Management Seminar, Lansing, Michigan

SELECTED EDUCATIONAL VIDEOS, BROCHURES, ETC:

2001	Cable TV, Ferris Focus, "Nuclear Medicine Technology Program", Ferris State University
2001	Cable TV, Ferris Focus, "Faculty Feature: Sheila Squicciarini", Ferris State University
1997	Cable TV, Ferris Focus, "Nuclear Medicine Technology Program", Ferris State University
1995	Cable TV, Ferris Focus, "Nuclear Medicine Technology Program", Ferris State University
1994	Magazine Interview, M.D. News, Grand Rapids, Michigan, Premier Issue

SELECTED EDUCATIONAL VIDEOS, BROCHURES, ETC: (con't)

April 13, 1993	Radio Interview, WOOD Radio AM 1300, "Health Matters: Nuclear Medicine"
June 1993	Script, Picker International, "Prism 3000, Prism 2000, and Prism 1000", Presented at The Society of Nuclear Medicine Annual Meeting, Toronto, Canada
1993	Brochure, Picker International, "Clinical Perspective"
1992	Video, Picker International, "Prism 2000. . .Advanced Whole Body, SPECT, and Planar Imaging

SELECTED PRESENTATIONS:

January 2002	"Healthcare and Education in China", presented to FSU students, faculty, and staff, Ferris State University
December 12, 2001	"China", presented to College of Allied Health Sciences faculty and staff, Ferris State University
April 30-May 2, 2001	"Nuclear Medicine Technology", presented to 9th and 10th grade students at the Math, Science & Technology Center, Big Rapids, Michigan
May 22, 1999	"Correlation Between Nuclear Medicine and Radiography", presented at Grand X-Ray's Seminar entitled, "Radiography. . .Things to Know", Western Michigan University's Regional Center, Grand Rapids, Michigan
May 22, 1999	"Future Trends. . .Software, Hardware, and Radiopharmaceuticals", presented at Grand X-Ray's Seminar entitled, "Nuclear Medicine. . .Beyond the Nineties", Western Michigan University's Regional Center, Grand Rapids, Michigan
March 28, 1998	"Enhanced Patient Care Skills for All Radiological Technologists", presented at Central Chapter Continuing Education Road Show, St. Mary's Health Services, Grand Rapids, Michigan
November 6, 1996	"Breast Imaging in the 90's", presented at Northwest Michigan Health Information Management Association's Personal Improvement Seminar, Falcon Head Golf Club, Big Rapids, Michigan
November 6, 1996	"Time Management", presented at Northwest Michigan Health Information Management Association's Personal Improvement Seminar, Falcon Head Golf Club, Big Rapids, Michigan
May 16, 1996	"Cardiovascular Nuclear Imaging", presented to the Mecosta County Division Board of Directors, American Heart Association Annual Meeting, Holiday Inn Hotel and Conference Center, Big Rapids, Michigan
November 11, 1995	"Multi-Skilling", presented to Northern Michigan Nuclear Medicine Association, Central Michigan Community Hospital, Mt. Pleasant, Michigan
October 30, 1995	"Multi-Skilled Health Care Providers", presented at Borgess Medical Center, Kalamazoo, Michigan
April 22, 1995	"Instrument and Patient Technical Set-Up Artifacts", presented at Central Chapter Continuing Education Road Show, St. Mary's Health Services, Grand Rapids, Michigan
November 14, 1994	"Time Management", presented at Dean's Student Advisory Committee Leadership Development Seminar, Ferris State University, Big Rapids, Michigan
Annually	"Nuclear Medicine Technology", presented at selected FSUS 100 and CAHS 100 classes, Ferris State University

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1. Sutton JM, Muller, DWM, Woodlief LH, SQUICCIARINI SA, Schwaiger M: The influence of combination thrombolytic therapy and immediate catheterization on global left ventricular function: TAMI-5 radionuclide ventriculogram results. American Heart Association Meeting, Dallas, TX, November 12-15, 1990.

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Appendix Two: Administrative Program Review

The Administrative Program Review Reports for the Nuclear Medicine Technology Programs are included in Appendix Two. These were provided by the Department Head, Health Related Programs.

ADMINISTRATIVE PROGRAM REVIEW: 2001

(final version – 10/24)

Program/Department: Nuclear Medicine - 2 year Date Submitted: January 4, 2002

Please provide the following information:

Enrollment

	Fall 1997	Fall 1998	Fall 1999	Fall 2000	Fall 2001
Tenure Track FTE	2	2	2	2	2
Overload/Supplemental FTEF	0	0	0	0	0
Adjunct/Clinical FTEF (unpaid)	18	18	18	18	18
Enrollment on-campus total*	21	23	28	37	40
Freshman	2	3	9	8	11
Sophomore	5	9	9	13	11
Junior	9	6	8	11	11
Senior	5	5	2	5	7
Masters	0	0	0	0	0
Doctoral	0	0	0	0	0
Pre-Professional Students	21	13	8	8	11
Enrollment off-campus*	0	0	0	0	0
Traverse City					
Grand Rapids					
Southwest					
Southeast					

*Use official count (7-day)

If there has been a change in enrollment, explain why:

Capacity:

Estimate program capacity considering current number of faculty, laboratory capacity, current equipment, and current levels of S&E.

36 students

What factors limit program capacity? **Joint Review Committee in Educational Programs in Nuclear Medicine Technology.**

Financial

Expenditures*	FY 97	FY 98	FY 99	FY 00	FY 01
Supply & Expense	$16,564	$16,140	$15,447	$14,211	$18,675
Faculty Prof. Development					
General Fund					
Non-General Fund					
UCEL Incentives					
FSU-GR Incentives					
Equipment					
Voc. Ed. Funds	$24,638		$9,138	$109,700	
General Fund					
Non-General Fund					
UCEL Incentives					
FSU-GR Incentives					

*Use end of fiscal year expenditures.

ADMINISTRATIVE PROGRAM REVIEW: 2001

If you spent UCEL and FSU-GR incentive money for initiatives/items other than faculty professional development and equipment, what were they? Explain briefly. Please also include amounts spent on each initiative/item.

Revenues	FY 97	FY 98	FY 99	FY 00	FY 01
Net Clinic Revenue					
Scholarship Donations					
Gifts, Grants, & Cash Donations					$100
Endowment Earnings					
Institute Programs/Services					
In-Kind					

Other

	AY 96/97	AY 97/98	AY 98/99	AY 99/00	AY 00/01
Number of Graduates* - Total	189	22	17	17	13
- On campus	18	22	17	17	13
- Off campus	0	0	0	0	0
Placement of Graduates	90%	100%	100%	100%	100%
Average Starting Salary	$32,000	$33,000	$34,000	$35,000	
Productivity - Academic Year Average	558	507	573	474	386
- Summer	108	94	110	82	60
Summer Enrollment	32	34	34	26	29

* Use total for full year (S, F, W)

1. a) Areas of Strength:

Faculty
Laboratory space
State of the industry equipment
100% job placement
99% pass rate on the national certification/licensure exams

b) Areas of Concern and Proposed Action to Address Them:

Advisory Committee does not meet on a regular basis. New members have been identified and a meeting is tentatively scheduled for January 2002. Program faculty met with Carla Miller to develop a course of action.
Equipment replacement
Clinical sites
Faculty qualifications

2. Future goals (please give time frame)

Offer net-enhanced courses for the Bachelor of Science Degree program. Develop 2001-2003. Implement Fall semester 2003.

3. Other Recommendations: None

4. Does the program have an advisory committee? Yes

a) If yes, when did it last meet?
Have not met with the new members. Meeting is tentatively scheduled for January 2002. Last formal meeting was in 1999.

b) If no, why not? By what other means do faculty receive advice from employers and outside professionals?
Adjunct Clinical Instructors meet on an annual basis at FSU. The program utilizes this group as an advisory committee also.

c) When were new members last appointed? August 2001.

d) Are there non-alumni/ae on the committee? How many? Yes, four.

5. Does the program have an internship or other cooperative or experiential learning course? Yes

a) If yes, is the internship required or recommended? Required

b) If no, what is the reason for not requiring such an experience?

6. Does the program offer courses through the web? No

a) Please list the web-based (fully delivered through the internet) courses the program offered last year?

b) Please list the web-assisted (e.g., WebCT) courses the program offered last year.

7. What is unique about this program?

a) For what distinctive characteristics is it known in the state or nation?

State-of-the-industry equipment in an on-campus laboratory.
100% job placement
99% pass rate on the national certification/licensure exams
Well prepared entry-level nuclear medicine technologists; actively recruited

b) What are some strategies that could lead to (greater) recognition?

Offer Bachelor of Science Degree in Nuclear Medicine Technology on-line.
Faculty becoming involved with national professional organizations.

8. Questions about Program Outcomes Assessment (attach additional sheets, if necessary):

a) What are the program's learning outcomes?

Prepare entry-level nuclear medicine technologists. Assessed through competencies on-campus and during internship.

b) What assessment measures are used, both direct and indirect?

Competencies
NMTCB and ARRT examination scores

c) What are the standards for assessment results?

Achieve a 90% or greater on competencies
Achieve a 70% or greater on the national certification/licensure exams.

d) What were the assessment results for 2000-01?

All students successfully completed competencies in NUCM 135 prior to internship.
99% of graduates successfully passed a national certification/licensure exam.

e) How will / how have the results been used for pedagogical or curricular change?

Have held review sessions or optional lab sessions for students struggling with competencies.

9. Questions about Course Outcomes Assessment:

a) Do all multi-sectioned courses have common outcomes? Yes

b) If not, how do you plan to address discrepancies?

c) Do you keep all course syllabi on file in a central location?
Yes, with department secretary and word processor.

*If you have questions about the outcomes assessment portions of this survey, please contact Laurie Chesley (x2713).

Form Completed by Julian Easter, Department Head, Health Related Programs
Name and Title

Reviewed by Dean_____

ADMINISTRATIVE PROGRAM REVIEW: 2001

(final version – 10/24)

Program/Department: Nuclear Medicine - 4 year Date Submitted: January 4, 2002

Please provide the following information:

Enrollment

	Fall 1997	Fall 1998	Fall 1999	Fall 2000	Fall 2001
Tenure Track FTE	2	2	2	2	2
Overload/Supplemental FTEF	0	0	0	0	0
Adjunct/Clinical FTEF (unpaid)	18	18	18	18	18
Enrollment on-campus total*	34	42	28	18	21
Freshman	0	0	0	3	1
Sophomore	1	2	2	1	2
Junior	15	4	5	4	6
Senior	18	36	21	10	12
Masters	0	0	0	0	0
Doctoral	0	0	0	0	0
Pre-Professional Students	9	8	2	0	0
Enrollment off-campus*	0	0	0	0	0
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Form Completed by Julian Easter, Department Head, Health Related Programs
Name and Title

Reviewed by Dean_____