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## NUCLEAR ENGINEERING ENROLLMENTS AND DEGREES, 1981

Enrollments — Fall 1972-Fall 1981  
Degrees Granted — July 1970-June 1981

U.S. Department of Energy  
Office of Energy Research  
Manpower Assessment Program

**MASTER**



Prepared by  
Oak Ridge Associated Universities  
Manpower Education, Research, and Training Division  
Labor and Policy Studies Program

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BY R.R. J. DATE 6-10-82

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## NUCLEAR ENGINEERING ENROLLMENTS AND DEGREES, 1981

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Office of Energy Research  
Manpower Assessment Program

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May 1982

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## ABSTRACT

This report presents data on the number of students enrolled and the degrees awarded in academic year 1980-81 from 73 U.S. institutions offering degree programs in nuclear engineering or nuclear options within other engineering fields.

Presented here are historical data for the last decade, which provide information such as trends by degree level, foreign national student participation, female and minority student participation, and placement of graduates. Also included is a listing of the universities by type of program and number of students.



## FOREWORD

The increasing demand for trained personnel to work in the nuclear field along with the decreasing number of bachelor's and master's nuclear engineering degrees awarded has prompted much concern and action on the part of government and industry officials. Reports by the U.S. Department of Energy, the Institute of Nuclear Power Operations, and the National Research Council\* have indicated that growth in nuclear engineering programs will be required to meet the future staffing needs in the nuclear power industry, in nuclear R&D activities, and in nuclear engineering academic programs.

The purpose of this report and these nuclear engineering enrollment and degree surveys is to chart the changes in the supply of new nuclear engineers and to assist planners and educators alike in preparing to provide this needed human resource.

The U.S. Department of Energy appreciates the continuing cooperation of the educational institutions involved in nuclear-related engineering training. We acknowledge and thank all those who have provided the data for these reports.

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\*The Department of Energy, A Study of the Adequacy of Personnel for the U.S. Nuclear Program (Washington, D.C., November 1981); Institute of Nuclear Power Operations, A Survey of Occupational Employment and Training in the Nuclear Power Industry, Manpower Studies Series, Report No. 1 (Atlanta, Georgia, September 1981); and National Research Council, Personnel Supply and Demand Issues in the Nuclear Power Industry (Washington, D.C., December 1981).



## INTRODUCTION

This report presents information received in the eleventh annual survey of the institutions which supply the nation's nuclear engineers. The survey was developed in 1970 because it was discovered that some of the graduates of our most prestigious nuclear engineering programs were not counted in other surveys--institutions sometimes offered the nuclear engineering degree through their mechanical engineering department or their electrical engineering department, etc., and the graduates were therefore counted in the mechanical or other engineering areas. This survey went to the department which offers the nuclear program rather than to the registrar, and so a better count of nuclear engineering graduates is provided.

Through the years, these surveys have been of benefit to employers and institutions far beyond the Department of Energy which uses them for program planning. Employers have found them a resource for recruitment; the institutions themselves have found the surveys useful in providing information on trends and other programs; and students can readily see which institutions offer the size of program in the nuclear speciality of interest to them.

The number of institutions included varies from year to year as schools are added or programs disappear. In the current survey, six respondents were added: University of Colorado, U.S. Naval Academy, University of Nebraska, Stevens Institute of Technology, Manhattan College, and Youngstown State University. Historical information is updated to reflect any prior year's data which may exist from new additions to the survey; previous volumes of the survey may thus show different information for earlier years.

Several new charts have been added to better reflect trends in enrollments, degrees, foreign national participation, and placement of graduates. Appendixes contain detailed statistics, addresses of participating institutions, and samples of the survey materials.



## HIGHLIGHTS

### Survey Universe

During the summer of 1981, the survey universe was updated to reflect any new programs that were not being included. As a result, 6 schools were added to the universe list, bringing the total to 73. Of the 73, 4 reported inactive programs, and 1 had discontinued its program.

### Enrollments

Enrollments at the undergraduate and master's levels increased slightly, but doctoral candidates decreased by 7 percent to the level shown in 1977.

### Degrees Awarded

Bachelor's degrees awarded in nuclear engineering are still on the decline for the third year in a row, with 642 awarded in 1981. Master's degree recipients have also decreased again, from 365 in 1980 to 315 in 1981. Ph.D.'s awarded increased slightly to 131 in 1981.

### Placement

As in past years, the largest placement of graduates was in private industry, where about a third found work. Sixty-five percent of those were bachelor's degree holders. At both the bachelor's and master's levels there were large numbers whose placement was unknown, which should be taken into consideration when looking at the placement figures. The second largest placement category of doctoral students was in foreign employment with all but one of those in that category being a foreign national.

### Minorities and Women

Minority group participation (excluding foreign nationals) again represented a very low percentage of the total (1-3 percent). The percentage of women remains in the 5-9 percent range.

### Foreign Nationals

Almost half of the graduating Ph.D.'s were reported to be foreign nationals. Master's candidate enrollments and degrees granted remained at about 25 percent of the total. Foreign national participation is lowest at the undergraduate level.

### Regional Distribution

The East North Central and Middle Atlantic regions again dominated all the levels of enrollment and degrees granted. The New England and Mountain regions were also represented in the top three regions granting Ph.D. and bachelor's degrees. Generally, the institutions reporting the largest numbers of enrollments and degrees granted were Pennsylvania State University, Massachusetts Institute of Technology, and Texas A&M University, University of Michigan, and the University of Illinois.



## ENROLLMENTS AND DEGREES

### DOCTORAL

The number of doctoral degrees conferred in 1981 rose slightly from that of the past few years (see Figure 1). While this may be somewhat encouraging, the Department of Energy and others are concerned about the rising percentage of those graduates who are foreign nationals and are in this country on temporary visas. Therefore, along with the continuing decline in doctoral enrollments, there remains a current and projected shortage of trained personnel. The 1981 fall enrollments showed another decrease at the doctoral level with 527 full-time and 50 part-time students enrolled, representing a 7 percent decline. In the 1972-73 edition of this report it was stated that "... increased industry recruitment offering high salaries is attracting students away from graduate schools . . . , and in some cases, the faculty as well. The projected level of 120-125 new Ph.D. nuclear engineers yearly will hardly meet a minimum attritional need . . . ."1

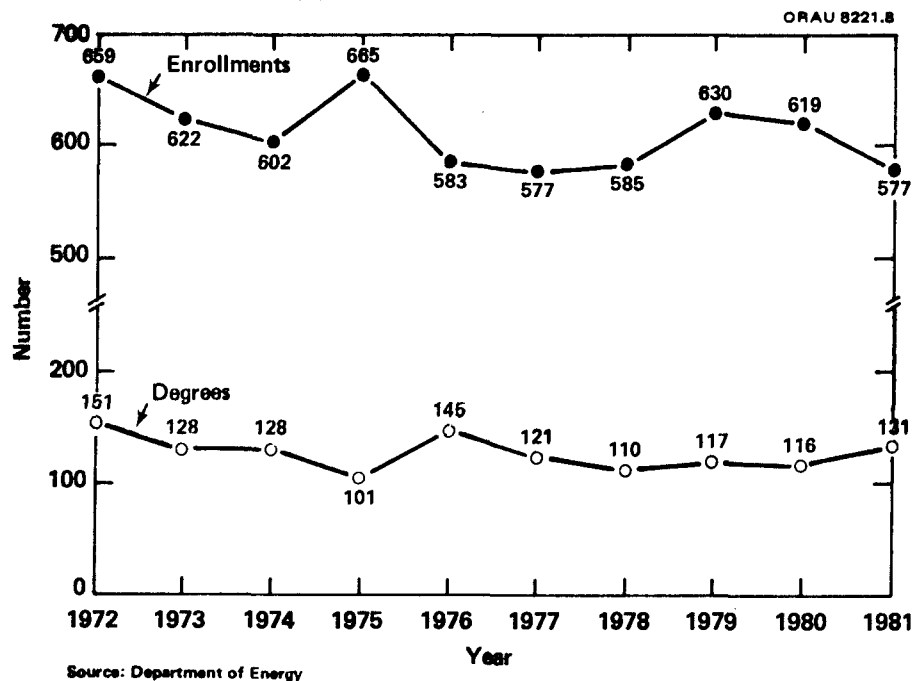


Figure 1. Doctoral Candidate Enrollment and Degrees Granted, 1972-1981

Since 1972, the number of Ph.D.'s awarded annually has averaged 125, and the concern in recent years has grown. The declining Ph.D. output as seen in Figure 1 is not unique to nuclear engineering. The percentage that nuclear doctoral degrees represents among engineering Ph.D. degrees has stayed about the same. In fact, the number of doctoral degrees awarded in engineering peaked in the early seventies and is now back to the level shown in the late sixties (see Appendix A-11).

The percentage of nuclear doctoral students who are receiving specific nuclear engineering degrees is still above 95 percent, but in 1981, enrollment in mechanical engineering with a nuclear option increased from 2 percent to 7 percent (see Appendix A-3).

Doctoral degrees were awarded by 45 percent of the institutions in the survey. The Massachusetts Institute of Technology again had the highest number of graduates with 20. The University of Michigan and the University of Illinois followed with 16 and 10 graduates, respectively. Appendix A-1 shows the number of degrees awarded by institution since 1971.

#### MASTER'S

Enrollment in master's programs increased only slightly (1 percent) to 876 in 1981 (see Figure 2). This number is still quite low by comparison to the last ten years. In fact, the number of 1981 master's enrollees is 38 percent less than the total enrolled in 1975. The degrees granted in 1981 decreased by 14 percent to 315. However, the number of master's degrees in all fields of engineering increased, bringing the percentage of those in nuclear engineering below the 2 percent mark (see Appendix A-11).

In both enrollments and degrees granted, 92 percent were in the specific nuclear engineering major. This was a slight decrease, while an increase was reported for degrees in mechanical engineering with a nuclear option (see Appendix A-3).

Sixty-five percent (or 48) of the schools in the survey granted master's degrees. Twelve of those schools accounted for 55 percent of the degrees awarded. The Massachusetts Institute of Technology awarded the most degrees with 34; the University of Michigan was next with 21, followed by Rensselaer Polytechnic Institute with 19 (see Appendix A-1).

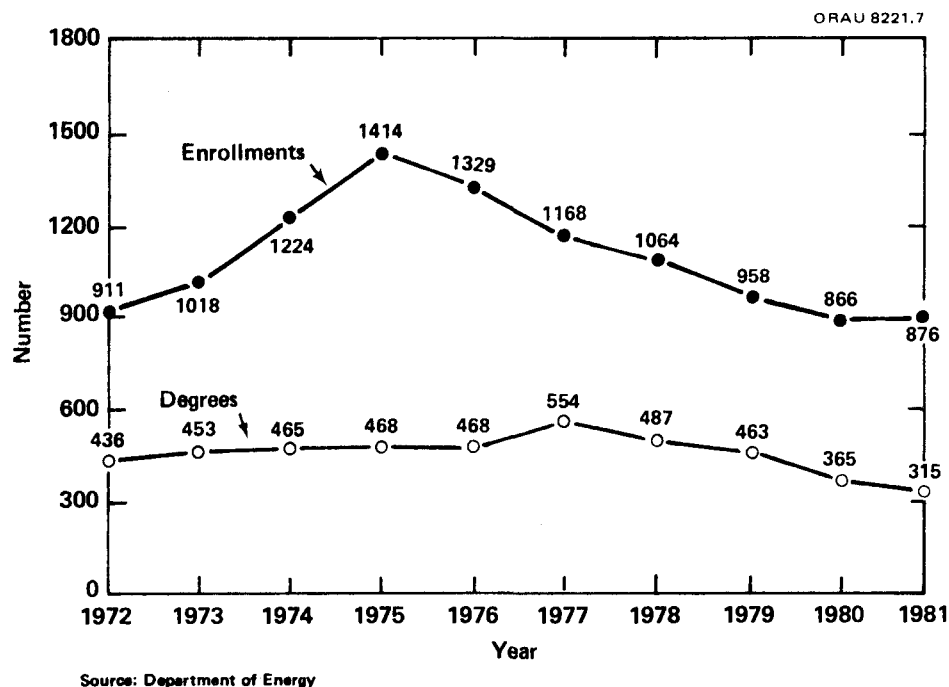


Figure 2. Master Candidate Enrollments and Degrees Granted, 1972-1981

## BACHELOR'S

Continuing the trend of the last two years, another slight decrease was shown at the bachelor's degree level with 642 degrees awarded in 1981 (see Figure 3). Although enrollments at the undergraduate level increased slightly, they are still down considerably from 1979.

The percentage of all engineering baccalaureate degrees that were nuclear dropped to its lowest point in eleven years (1.02 percent). All engineering baccalaureate degrees increased by 7 percent in 1981, while nuclear failed to follow the trend (see Appendix A-11).

Sixty-five percent of the degrees granted and 68 percent of the enrollments were in the nuclear engineering major. The second largest subfield was again mechanical engineering with a nuclear option, where 17 percent of the enrollments and 21 percent of the degrees were reported (see Appendix A-3).

Texas A&M University awarded the most bachelor's degrees with 40; Penn State and Utah State followed with 31 and 30, respectively (Appendix A-1). Penn State had the largest undergraduate enrollment with 96 enrollees; the University of Illinois was second with 69 enrolled (see Appendix A-4).

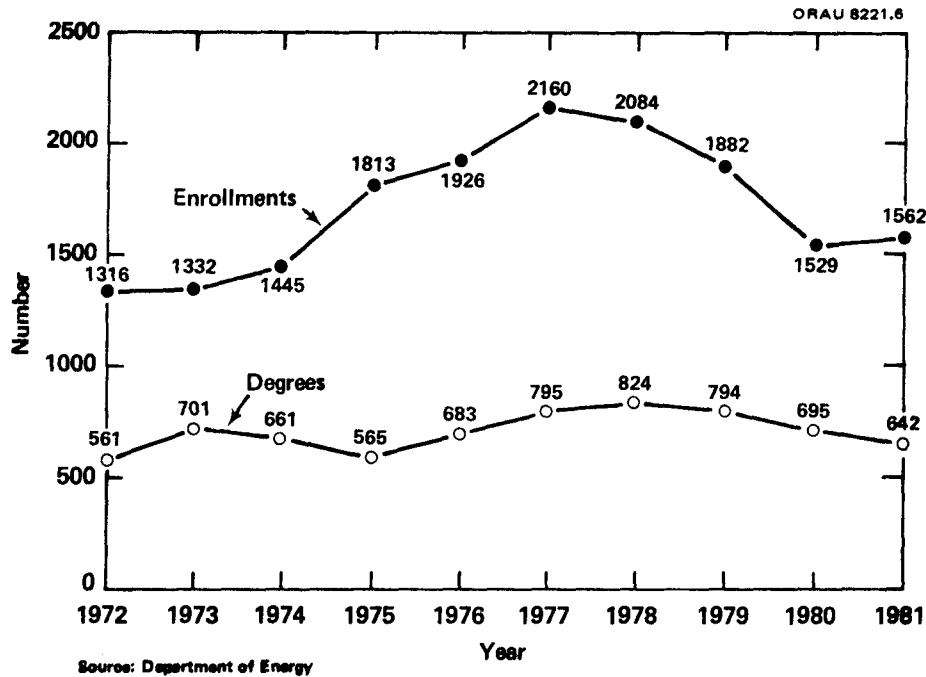
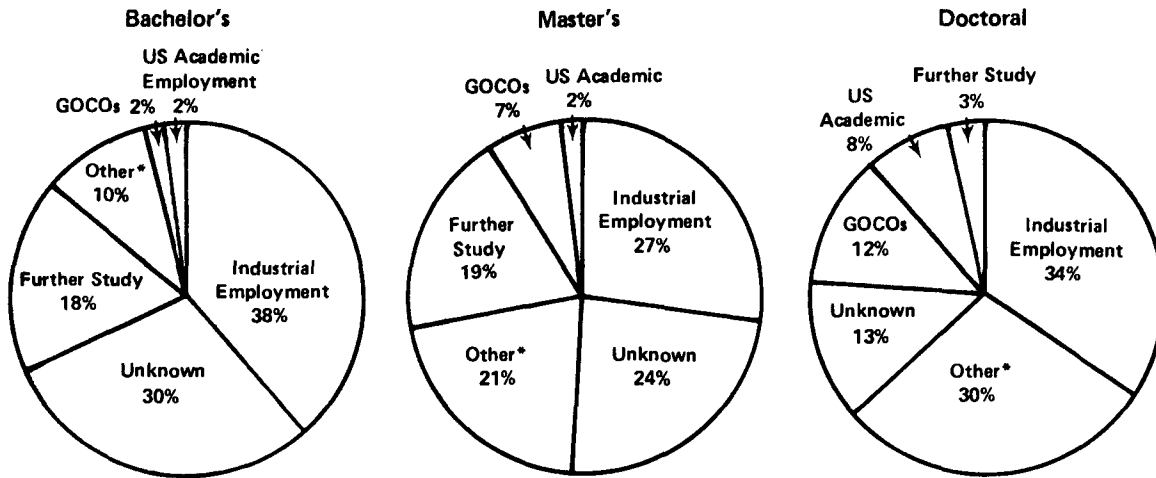


Figure 3. Undergraduate Enrollments and Degrees Granted, 1972-1981

#### PLACEMENT OF GRADUATES

The placement figures for 1981 graduates show the same general trends of recent years. Figure 4 shows that the largest percentage went into industry. Employment of bachelor's degree holders in industry has increased 41 percent since 1979. That particular placement category now accounts for approximately a third of all graduates. Approximately one-fifth of the bachelor's and master's degree recipients went on for further study, which is about the same as in recent years. That number has declined a little since 1976 when just over one-fourth went on for further study. The unknown placement figure remains at about a quarter of the total graduates.

Of interest to those concerned about decreasing doctoral enrollments and the future of nuclear engineering academic programs is the number of those going into teaching, or "U.S. Academic Employment." In 1976, the percentage of



Source: Department of Energy

Figure 4. Placement of Nuclear Engineering Graduates by Degree Level, 1981

\*"Other" includes federal, state, and local government; foreign employment; military; still seeking employment; and other.

graduates who went into teaching was 17 percent at the doctoral level. In 1981, it was 8 percent. One obvious explanation for this exit from academia is the salary differential between teaching and other employment. In 1980, the average salary of an assistant professor on a 9-10 month basis in engineering schools with a Ph.D. program was \$19,000.<sup>2</sup> That same year, the College Placement Council reported the average salary offer to a new bachelor's graduate in engineering was about \$21,000.<sup>3</sup> In many cases considerably higher salaries were offered by industry. A detailed table of placement figures can be found in Appendix A-6.

#### WOMEN AND MINORITIES

Female and minority participation did not increase to any great extent in 1981. Appendix A-7 gives the detailed numbers and percentages. Women graduates did increase 5 percentage points in the doctoral degree category. Minority student participation remained low--in the 1-3 percent range.

The level of female participation in nuclear engineering is similar to that in all engineering. It was reported by the Engineering Manpower Commission that in 1981, the proportion of women receiving engineering degrees attained an all-time high of 10.4 percent at the baccalaureate level, 6.9 percent at the master's level, and 3.2 percent at the doctoral level.<sup>4</sup> In nuclear engineering, the percentage of females receiving degrees in 1981 stood at 7 percent, 7 percent, and 5 percent at the bachelor's, master's, and Ph.D. levels, respectively.

#### FOREIGN NATIONALS

Figure 5 shows that in 1981 almost half of the doctoral degrees awarded went to foreign nationals, a substantial increase since the 1970s. However, their representation was not quite as high in other categories. A little more than one-fourth of the master's degree recipients and 7 percent of those receiving bachelor's degrees were foreign nationals. The percentages of foreign nationals receiving degrees in all engineering fields were 8.9 percent at the baccalaureate level, 26 percent at the master's, and 37.1 at the doctoral level.<sup>5</sup>

Enrollment of foreign nationals dropped six percentage points at the doctoral level in 1981 and two percentage points at the master's level. Undergraduate enrollment remained at about 8 percent (see Appendix A-7). Foreign nationals are most likely to be full-time students, which accounts for their larger representation in the degrees granted category than in enrollments.

Appendix A-6 shows the number of total placements that were foreign nationals. Twenty-three of the 24 doctoral graduates that were employed with a foreign employer were foreign nationals. Slightly more than half of those doctorates going into industry were foreign nationals. Almost half of those master degree recipients going on for further study were foreign nationals.

#### REGIONAL DISTRIBUTION

At both the graduate and undergraduate levels, enrollment was highest in the East North Central and Middle Atlantic regions, respectively. Of the nine regions these two accounted for 43 percent of the total enrollment and 35 percent of the reporting institutions. Undergraduate enrollment was highest at

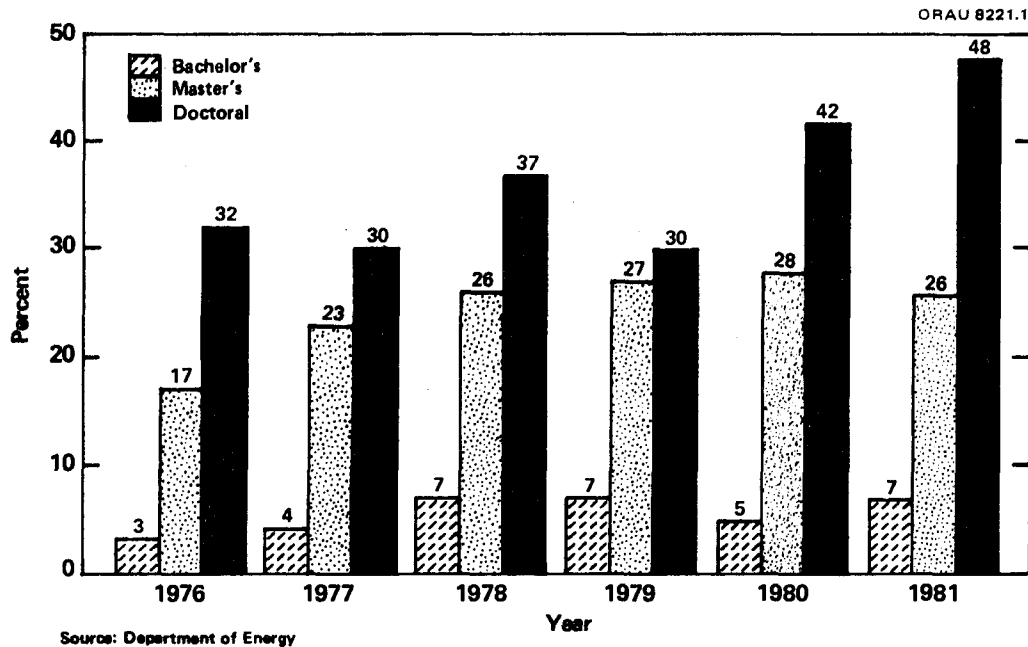


Figure 5. Nuclear Engineering Degrees Granted to Foreign Nationals, 1976-1981

Pennsylvania State University with 96 students. The Massachusetts Institute of Technology (MIT) enrolled the most graduate students in 1981 with 152. Three schools (Massachusetts Institute of Technology, University of Michigan, University of Wisconsin) had 21 percent of the graduate enrollments (see Appendix A-10).

The East North Central region awarded the most degrees at all levels, followed by the Middle Atlantic region at the bachelor's and master's levels and the New England region at the doctoral level.

Texas A&M University awarded the most bachelor degrees (40), MIT the largest number of master's degrees (34), and MIT the largest number of doctorates (20). Seven schools awarded 20 percent of the nuclear engineering degrees in 1981.

## NOTES

<sup>1</sup>United States Atomic Energy Commission, Division of Labor Relations, Nuclear Engineering Enrollments and Degrees, July 1974, Wash-1228(74).

<sup>2</sup>Scientific Manpower Commission, Manpower Comments, vol. 18, no. 2 (Washington, D.C., March 1981).

<sup>3</sup>Ibid.

<sup>4</sup>Scientific Manpower Commission, Manpower Comments, vol. 18, no. 10 (Washington, D.C., December 1981).

<sup>5</sup>Ibid.



## APPENDIXES

Appendix A. Statistical Tables

Appendix B. Addresses

Appendix C. Survey Materials



# APPENDIX A-1. NUCLEAR ENGINEERING DEGREES GRANTED 1971-1981 BY INSTITUTION

B = Bachelor's  
M = Master's  
D = Doctoral

State and Institution	July- June-	1970 1971			1971 1972			1972 1973			1973 1974			1974 1975			1975 1976			1976 1977			1977 1978			1978 1979			1979 1980			1980 1981		
		B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D			
ALABAMA																																		
Tuskegee Institute . . . . .		-	2	-	-	-	-	-	2	-	-	5	-	-	3	-	-	-	-	1	-	-	1	-	-	1	-	-	-	-	-	-		
ARIZONA																																		
Arizona State University . . .		6	1	-	5	2	-	5	1	-	8	-	-	10	1	-	15	-	-	16	1	-	58	1	-	26	1	-	10	-	-	11	-	-
University of Arizona . . . .		13	6	8	8	2	-	6	4	3	15	7	3	12	2	2	14	6	-	8	3	3	16	5	2	17	8	1	11	6	2	14	10	1
CALIFORNIA																																		
University of California, Berkeley . . . . .		-	22	10	3	28	10	-	9	5	-	17	8	-	23	8	-	13	10	-	20	5	-	20	4	20	19	8	17	17	8	-	10	7
University of California, Davis . . . . .		-	-	1	-	-	2	PROGRAM DISCONTINUED																										
University of California, Los Angeles . . . . .		15	6	5	-	9	6	9	-	4	-	5	5	-	5	1	-	4	4	-	4	5	8*	7	1	7	8	4	7	8	1	7*	8*	1*
Stanford University . . . . .		-	15	2	-	8	1	-	5	2	-	7	5	-	8	3	-	3	2	-	6	1	-	3*	1	-	-	-	-	1	-	-	2	-
University of California, Santa Barbara . . . . .		1	1	-	8	1	-	9	-	-	10	2	-	4	1	1	7	1	1	9	1	-	10	2	-	11	2	-	13	2	-	12	4	-
San Jose State University . .		-	-	-	7	-	-	8	-	-	2	1	-	3	1	-	1	-	-	3	1	-	-	-	-	-	-	-	PROGRAM DISCONTINUED			-	-	-
California State University, Northridge . . . . .		5*	1*	-	7	2	-	7	1	-	8	2	-	7	5	-	11	-	-	4	-	-	-	-	-	-	-	-	INACTIVE			-	-	-
California Institute of Technology . . . . .		-	-	-	-	-	2*	-	-	1	-	-	2	-	2	3	PROGRAM DISCONTINUED																	
COLORADO																																		
Colorado State University . .	PROGRAM STARTED '72	-	1	-	-	2	1	-	-	1	-	1	-	-	2	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	
University of Colorado** . .	INTERIM DATA NOT AVAILABLE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	

\*Estimated.

\*\*New program added to survey in 1981.

# APPENDIX A-1 (Continued)

State and Institution	July- June-	1970 1971			1971 1972			1972 1973			1973 1974			1974 1975			1975 1976			1976 1977			1977 1978			1978 1979			1979 1980			1980 1981				
		B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D					
<u>CONNECTICUT</u>																																				
Hartford Graduate Center . . .		-	2	-	-	1	-	-	2	-	-	2	-	-	3	-	-	5	-	-	3	-	PROGRAM DISCONTINUED													
U.S. Coast Guard Academy . . .	FIRST DEGREE	AWARDED '72			7	-	-	4	-	-	6	-	-	PROGRAM DISCONTINUED																						
<u>DISTRICT OF COLUMBIA</u>																																				
Catholic University of America . . . . .		-	12	2	-	-	2	-	5	2	-	10	2	1	10	1	2	9	-	1	9	-	-	-	-	4	1	-	5	-	-	4	1			
Howard University . . . . .		-	2	-	-	1	-	11	-	-	7*	3	-	-	3	-	-	9	-	-	2	-	-	2	-	-	3	-	-	3	-	-	2	-		
<u>FLORIDA</u>																																				
University of Florida . . . .		15	7	4	11	15	1	10	13	3	14	12	1	23	14	2	28	13	3	42	15	5	37	13	3	32	14	2	22	12	1	19	4	1		
<u>GEORGIA</u>																																				
Georgia Institute of Technology . . . . .		-	19	9	-	32	7	-	46	6	2	27	3	6	25	1	27	24	4	21	22	2	28	17	5	28	25	6	28	6	5	16	8	4		
<u>IDAHO</u>																																				
University of Idaho . . . . .		11	4	1	8	3	-	11	5	-	9	7	-	7	1	-	9	5	-	4	3	-	5	4	-	4	4	-	3	8	-	5	7	-		
Idaho State University . . . .		8	1	-	6	2	-	7	1	-	9	4	-	2	6	-	7	1	-	8	-	-	13	4	-	5	4	-	4	-	-	5	1	-		
<u>ILLINOIS</u>																																				
Northwestern University . . .		3	3	3	3	1	1	5	6	3	1	2	1	4	7	1	3	6	1	3	7	1	-	3	1	1	1	2	6	3	2	7	6	3		
University of Illinois . . . .		-	23	17	-	23	7	-	25	3	-	22	7	-	31	3	1	41	12	10	24	6	12	18	3	10	26	8	24	18	16	24	8	10		
<u>INDIANA</u>																																				
Purdue University . . . . .		-	10	5	8	12	4	15	9	3	6	10	2	12	10	1	11	12	2	17	28	5	12	11	3	20	8	6	28	7	-	18	3	3		
University of Notre Dame . . .		1	1	1	2	-	-	6	-	-	6	2	-	5	-	1	2	2	-	4	-	-	4	-	-	7	-	-	13	-	-	12	-	-		
<u>IOWA</u>																																				
Iowa State University. . . . .		-	6	4	-	14	7	-	5	4	-	8	2	-	8	5	-	3	2	-	12	2	-	5	4	2	4	-	15	1	2	13	9	4		

\*Estimated.

APPENDIX A-1 (Continued)

State and Institution	July- June-	1970 1971			1971 1972			1972 1973			1973 1974			1974 1975			1975 1976			1976 1977			1977 1978			1978 1979			1979 1980			1980 1981			
		B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D				
<b>KANSAS</b>																																			
Kansas State University. . .		13	5	1	17	11	6	21	8	6	17	5	3	18	5	3	10	4	4	20	8	-	17	4	2	29	9	4	14	5	4	13	9	3	
<b>KENTUCKY</b>																																			
University of Kentucky . . .		3	2	-	-	3	-	-	2	-	-	1	-	-	2	-	-	2	-	-	4	2	-	2	1	-	2	-	1	1	-	3	1	-	
<b>LOUISIANA</b>																																			
Louisiana State University . .		-	2	-	-	3	-	5	4	-	5	8	-	4	4	-	3	3	-	3	5	-	2	5	-	-	4	-	-	2	-	-	4	-	
Louisiana Tech University. . .								FIRST DEGREE REPORTED IN 1976-1977										11	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>MAINE</b>																																			
University of Maine. . . . .		-	-	-	2*	-	-	2*	-	-	2*	-	-	2	-	-	2	-	-	5	-	-	5	-	-	3*	-	-	2	1	-	5	1	-	
<b>MARYLAND</b>																																			
U.S. Naval Academy** . . . . .		4	-	-	6	-	-	8	-	-	10	-	-	12	-	-	15	-	-	15	-	-	15	-	-	10	-	-	8	-	-	8	-	-	
University of Maryland . . . .		6	9	8	6	4	6	16	2	-	5	5	2	4	4	3	9	4	4	10	8	5	13	5	3	17	12	-	14	6	1	10	2	3	
<b>MASSACHUSETTS</b>																																			
Massachusetts Institute of Technology. . . . .		-	31	14	-	31	21	-	34	14	-	44	8	-	37	7	-	37	23	2	43	23	-	63	20	7	40	15	12	40	19	10	34	20	
University of Lowell . . . . .		12	-	-	37	2	-	40	1	-	27	6	-	27	6	-	23	7	-	39	9	-	23	5	-	24	1	-	12	2	-	12	4	-	
Worcester Polytechnic Institute. . . . .		13*	-	-	15	-	-	12*	-	-	17	-	-	14*	-	-	13*	-	-	17*	-	-	12	-	-	12*	1	-	12	-	-	15	1	-	
<b>MICHIGAN</b>																																			
Michigan Technical University . . . . .								FIRST DEGREE REPORTED IN 1976-1977										15	1	-	15	1	-	-	-	-	-	-	-	-	-	-	-	-	-
University of Michigan . . . .		15	20	8	20	9	15	25	18	6	23	16	18	20	21	9	44	33	13	31	21	7	27	28	10	29	22	8	27	26	6	25	21	16	

\*Estimated

\*\*New program added to survey in 1981.

APPENDIX A-1 (Continued)

State and Institution	July- June-	1970 1971			1971 1972			1972 1973			1973 1974			1974 1975			1975 1976			1976 1977			1977 1978			1978 1979			1979 1980			1980 1981		
		B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D			
<b>MISSISSIPPI</b>																																		
Mississippi State University . . . . .		6	-	-	10	1	-	11	2	-	11	-	-	14	1	-	14	2	-	14	-	-	10	2	-	16	2	-	9	3	-	5	1	-
<b>MISSOURI</b>																																		
University of Missouri, Columbia . . . . .		-	6	1	13*	7	2	32*	11	4	44*	7	-	-	5	1	-	5	2	-	7	3	-	11	7	-	10	4	-	5	3	-	11	8
University of Missouri, Rolla . . . . .		11	6	1	8	5	1	11	6	1	13	7	-	14	5	1	18	2	3	15	8	-	6	3	1	12	1	-	21	1	-	5	-	1
<b>NEBRASKA</b>																																		
University of Nebraska** . . . . .																																6	-	-
<b>NEVADA</b>																																		
University of Nevada, Reno . . . . .		5	-	-	4	-	-	2	-	-	1	-	-	1	1	-	PROGRAM DISCONTINUED																	
<b>NEW JERSEY</b>																																		
New Jersey Institute of Technology . . . . .		16	-	-	17	-	-	17	-	-	17	-	-	17	-	-	11	-	-	8	9	-	13	-	-	13	-	-	12	-	-	13	-	-
Stevens Institute of Technology** . . . . .																	PROGRAM STARTED IN 1976																	
<b>NEW MEXICO</b>																																		
University of New Mexico . . . . .		6	9	4	3	9	2	4	12	1	-	6	2	-	17	2	-	9	2	-	11	2	-	6	-	-	10	6	-	10	3	4	8	1

\*Estimated

\*\*New program added to survey in 1981.

# APPENDIX A-1 (Continued)

State and Institution	July- June-	1970 1971			1971 1972			1972 1973			1973 1974			1974 1975			1975 1976			1976 1977			1977 1978			1978 1979			1979 1980			1980 1981					
		B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D						
NEW YORK																																					
Manhattan College**		9	-	-	19	-	-	30	-	-	23	-	-	22	-	-	17	-	-	19	-	-	26	-	-	41	10	-	32	-	-	19	-	-			
State University of New York, Buffalo		7	2	-	3	2	-	9	-	-	4	2	-	6	7	-	4	5	-	7	9	2	10	7	1	9	3	1	8	3	-	5	-	-			
State University of New York, Maritime		10*	-	-	10*	-	-	10*	-	-	10	-	-	19	-	-	9	-	-	16	-	-	17	-	-	11	-	-	6	-	-	9	-	-			
Polytechnic Institute of New York		15	4	1	8	11	1	6	13	2	4*	15*	2*	-	7	-	-	-	-	6	32	1	2	18	1	10	21	-	4	10	-	4	18	-			
Cornell University		-	6	3	-	9	2	-	6	2	-	13	1	-	6	1	-	10	3	-	9	-	-	7	2	-	4	1	-	1	3	-	3	1			
Columbia University		8	7	10	3	8	4	8	6	1	16	7	4	5	7	3	7	4	1	8	13	2	9	10	3	9	9	1	3	6	2	3	4	1			
Clarkson College of Technology																	60	2	-	53	2	-	27	-	-	18	-	-	11	1	-	13	-	-			
Rensselaer Polytechnic Institute		9	6	3	20	13	4	17	14	1	13	19	7	24	15	5	43	14	3	35	21	7	35	21	2	23	22	3	36	19	6	20	19	6			
Long Island U-CW Post College		-	2	-	PROGRAM DISCONTINUED																																
NORTH CAROLINA																																					
North Carolina State University		29	9	3	21	10	3	26	13	3	32	4	5	21	5	3	23	3	2	19	6	-	22	8	2	17	7	2	12	7	3	11	3	3			
OHIO																																					
University of Cincinnati		8	7	1	2	14	4	2	7	3	1	3	1	6	5	2	7	16	4	15	10	4	13	6	5	14	4	9	12	15	2	21	8	2			
Case Western Reserve University		-	2	-	-	2	2	-	2	1	4	-	2	-	2	-	-	1	1	-	2	-	-	3	-	-	1	-	-	-	-	-	-	-			
Air Force Institute of Technology		-	16	1	-	11	3	-	6	1	-	10	1	-	13	1	-	6	1	-	8	-	-	11	-	-	15	1	-	5	2	-	12	2			
Ohio State University		7	8	4	5	6	2	5	11	6	6	10	3	6	-	5	8	8	6	12	10	1	14	9	1	16	9	1	-	9	1	9	4	-			
Youngstown State Univ.**					PROGRAM STARTED IN 1975												2	-	-	3	-	-	3	-	-	4	-	-	3	-	-	4	-	-	6	-	-

\*Estimated.

\*\*New program added to survey in 1981.

APPENDIX A-1 (Continued)

State and Institution	July- June-	1970 1971			1971 1972			1972 1973			1973 1974			1974 1975			1975 1976			1976 1977			1977 1978			1978 1979			1979 1980			1980 1981					
		B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D						
<b>OKLAHOMA</b>																																					
Oklahoma State University. . .					-	-	1	-	-	-	PROGRAM DISCONTINUED																										
University of Oklahoma . . . .		2	1	-	5	3	-	3	1	2	3	1	1	10	1	-	8	2	-	8	3	-	11	1	-	9	-	-	9	-	-	9	2	1			
<b>OREGON</b>																																					
Oregon State University. . . .		7	2	1	13	2	-	15	2	-	30	5	1	16	4	1	31	1	2	34	9	1	26	2	-	27	5	3	21	3	-	22	5	1			
<b>PENNSYLVANIA</b>																																					
University of Pennsylvania . . .					PROGRAM STARTED IN 1974-1975										-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Carnegie-Mellon University . . .		-	14	5	-	14	5	-	17	8	-	11	2	-	14	2	-	12	2	-	15	2	-	5	1	1	13	-	13	1	-	INACTIVE					
Pennsylvania State University . . . . .		16	12	2	12	16	3	21	12	3	19	21	2	15	14	-	29	16	7	42	9	3	36	13	1	44	15	1	40	10	1	31	11	3			
<b>PUERTO RICO</b>																																					
University of Puerto Rico. . . .		-	5	-	-	5	-	-	5	-	-	5	-	-	5	-	-	5	-	-	-	-	-	-	-	INACTIVE	INACTIVE	INACTIVE	INACTIVE								
<b>RHODE ISLAND</b>																																					
University of Rhode Island . . .		-	2	-	-	-	-	-	1	1	-	1	-	-	2	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	PROGRAM DISCONTINUED						
<b>SOUTH DAKOTA</b>																																					
South Dakota State University . . . . .		1	-	-	2	-	-	2	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	INACTIVE				
<b>TENNESSEE</b>																																					
Tennessee Technological University . . . . .		13	-	-	7	-	-	6	-	-	9	-	-	8	-	-	8	-	-	2	-	-	3	-	-	4	2	-	6	-	-	3	-	-			
University of Tennessee . . . .		14	7	8	24	3	3	12	5	2	16	4	1	22	8	1	11	5	7	22	10	6	24	10	1	20	9	3	13	3	5	11	-	4			
Memphis State University . . . .		8	8	-	15	4	-	18	6	-	19	3	-	15	10	-	-	-	-	1	-	-	INACTIVE														
Vanderbilt University. . . . .		11	-	-	10	-	-	10	-	-	12*	-	-	PROGRAM DISCONTINUED																							

\*Estimated.



APPENDIX A-1 (Continued)

State and Institution	July- June-	1970 1971			1971 1972			1972 1973			1973 1974			1974 1975			1975 1976			1976 1977			1977 1978			1978 1979			1979 1980			1980 1981			
		B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D				
<u>TEXAS</u>																																			
University of Texas, Austin.		-	3	3	20	5	1	25	4	3	10	3	3	15	2	1	-	3	2	25	6	1	25	6	1	-	8	1	20	6	1	-	4	-	
Texas A&M University . . . .		11	6	3	20	5	1	32	15	2	31	9	1	20	9	-	36	2	2	37	7	2	54	17	4	42	8	3	31	3	2	40	9	-	
<u>UTAH</u>																																			
Utah State University. . . .		9	2	-	7	2	-	12	6	-	8	2	-	4	2	-	6	2	-	4	1	-	16	5	-	20	3	-	-	-	-	30	4	-	
Brigham Young University . .					FIRST DEGREE AWARDED IN 1974-1975										-	3	-	4	2	-	5	2	1	7	-	2	3	1	1	7	-	-	10	-	-
University of Utah . . . . .		21	2	-	22	5	-	25*	7	-	20*	2	1	12	3	-	-	7	-	-	3	-	-	1	-	24	2	-	23	1	-	26	2	-	
<u>VIRGINIA</u>																																			
Virginia Polytechnic Institute . . . . .		23	1	1	26	5	1	31	13	1	33	6	-	18	10	2	24	14	-	30	8	1	23	13	1	24	8	-	-	5	1	17	2	1	
University of Virginia . . . .		18	14	2	32	11	3	30	11	5	15	18	4	28	8	9	24	24	2	16	29	1	27	26	3	17	10	2	23	14	1	11	5	5	
<u>WASHINGTON</u>																																			
University of Washington . .		-	20	1	-	10	1	-	15	3	-	16	5	-	16	2	-	11	4	-	12	2	-	14	-	-	11	2	-	15	3	-	7	5	
Washington State University.		-	2	2	3	2	-	4	-	-	7	-	-	-	-	-	PROGRAM DISCONTINUED																		
<u>WEST VIRGINIA</u>																																			
West Virginia University . .		-	-	1	-	-	1	-	-	-	PROGRAM DISCONTINUED (still closed)																								
<u>WISCONSIN</u>																																			
University of Wisconsin. . .		15	10	7	18	15	3	20	14	6	22	15	6	21	12	4	21	26	4	21	19	7	30	22	8	25	17	6	16	21	9	15	7	5	
<u>WYOMING</u>																																			
University of Wyoming. . . .		2	-	-	-	1	-	-	-	-	PROGRAM DISCONTINUED																								
TOTALS		461	414	171	561	436	151	701	453	128	661	465	128	565	468	101	683	468	145	795	554	121	824	487	110	794	463	117	695	365	116	642	315	131	

\*Estimated

Note: Some of the numbers shown have been changed from previously published reports, as historical data has been collected and reported.

# APPENDIX A-2

## ENROLLMENT OF FULL-TIME AND PART-TIME STUDENTS IN NUCLEAR ENGINEERING BY EDUCATIONAL LEVEL, FALL 1972 THROUGH FALL 1981

Year	Undergraduate						Graduate					
	3rd Year		4th Year		5th Year		Master's Candidates			Doctoral Candidates		
	FT	PT	FT	PT	FT	PT	FT	PT	Total	FT	PT	Total
1972	628	5	662	5	16	-	717	194	911	509	150	659
1973	603	7	670	30	22	-	766	252	1,018	504	118	622
1974	687	4	707	12	35	-	823	401	1,224	475	127	602
1975	851	18	841	23	78	2	958	456	1,414	550	115	665
1976	913	31	925	24	32	1	1,015	314	1,329	486	97	583
1977	1,018	4	1,012	8	104	14	809	359	1,168	481	96	577
1978	885	13	1,003	7	173	3	818	246	1,064	500	85	585
1979	797	10	926	7	132	10	704	254	958	541	89	630
1980*	737	6	770	16	N/A	N/A	649	217	866	550	69	619
1981	710	14	806	32	N/A	N/A	624	252	876	527	50	577

\*The reporting form was changed to reflect "juniors and seniors," respectively, in 1980 by deleting 5th year as a separate category on the survey form.

N/A = Not applicable.

Source: U.S. Department of Energy.

# APPENDIX A-3

## UNDERGRADUATE, MASTER'S, AND DOCTORAL ENROLLMENTS AND DEGREES GRANTED IN NUCLEAR ENGINEERING OR OTHER ENGINEERING FIELDS WITH NUCLEAR OPTION, 1978-1981 (percent distribution)

Nuclear Field	Enrollments											
	Undergraduate				Master's Candidates				Doctoral Candidates			
	1978	1979	1980	1981	1978	1979	1980	1981	1978	1979	1980	1981
Nuclear engineering	68	72	71	68	96	93	94	92	98	97	97	91
Chemical	3	4	4	5	0	*	*	0	0	*	*	0
Engineering science	6	3	5	4	1	1	*	1	1	*	0	0
Electrical	6	5	4	3	0	0	*	0	0	0	0	0
Mechanical	12	12	12	17	3	6	6	6	1	2	2	7
Other	7	4	4	3	0	0	*	0	0	1	*	2

Nuclear Field	Degrees Granted											
	Bachelor's				Master's				Doctoral			
	1978	1979	1980	1981	1978	1979	1980	1981	1978	1979	1980	1981
Nuclear engineering	70	77	76	65	95	94	95	92	95	96	99	96
Chemical	4	1	5	5	0	*	*	0	2	1	0	0
Engineering science	7	2	4	3	0	*	0	0	1	1	0	0
Electrical	4	4	4	2	1	*	0	0	0	0	0	0
Mechanical	11	12	11	21	4	4	5	8	3	3	1	2
Other	4	3	1	4	0	0	*	0	0	0	0	2

\*Less than 0.5 percent.

Note: Percentages of enrollments and degrees granted are based on total nuclear-related enrollments and degrees by all institutions reporting that year. Percentages may not add to 100 percent because of rounding.

Source: U.S. Department of Energy.

APPENDIX A-4  
NUCLEAR ENGINEERING ENROLLMENTS AND DEGREES  
IN SUBFIELDS BY INSTITUTION, 1981

FT = FULL TIME  
PT = PART TIME

STATE - INSTITUTION AND SUBFIELD	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR	4TH YEAR	3RD YEAR	4TH YEAR	MASTER	DOCTORATE	MASTER	DOCTORATE	BACH	MASTER	PHD
ALABAMA											
TUSKEGEE INSTITUTE NUCLEAR ENGINEERING					1						
ARIZONA											
ARIZONA STATE UNIVERSITY CHEMICAL, WITH NUCLEAR OPTION			1								
ENGINEERING SCIENCE, WITH NUCLEAR OPTION	10		10		1				10		
MECHANICAL, WITH NUCLEAR OPTION	3		2		1				1		
UNIVERSITY OF ARIZONA NUCLEAR ENGINEERING	16		17	1	15	3	8	4	14	10	1
CALIFORNIA											
UNIVERSITY OF CALIFORNIA, BERKELEY NUCLEAR ENGINEERING	5		3		14		1			10	7
CHEMICAL, WITH NUCLEAR OPTION	2		1								
ELECTRICAL, WITH NUCLEAR OPTION	5		3								
MECHANICAL, WITH NUCLEAR OPTION	4		4								
INDUSTRIAL ENGINEERING WITH NUCLEAR OPTI	2										
UNIVERSITY OF CALIFORNIA, LOS ANGELES MECHANICAL, WITH NUCLEAR OPTION					15		30		7	8	1
CALIFORNIA STATE UNIVERSITY, NORTHRIDGE ENGINEERING SCIENCE, WITH NUCLEAR OPTION			8	7			9				

# APPENDIX A-4 (Continued)

FT = FULL TIME  
PT = PART TIME

STATE - INSTITUTION AND SUBFIELD	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD	YEAR	4TH	YEAR	MASTER	DOCTORATE			BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
CALIFORNIA (CONTINUED)											
UNIVERSITY OF CALIFORNIA, SANTA BARBARA NUCLEAR ENGINEERING	15		14		14	1	4		12	4	
STANFORD UNIVERSITY MECHANICAL, WITH NUCLEAR OPTION							2			2	
COLORADO											
UNIVERSITY OF COLORADO PHYSICS W/ NUCLEAR OPTION								1			1
COLORADO STATE UNIVERSITY MECHANICAL, WITH NUCLEAR OPTION					1	1					
DISTRICT OF COLUMBIA											
CATHOLIC UNIVERSITY OF AMERICA MECHANICAL, WITH NUCLEAR OPTION	1		2		1	10		2		4	1
HOWARD UNIVERSITY NUCLEAR ENGINEERING					7					2	
FLORIDA											
UNIVERSITY OF FLORIDA NUCLEAR ENGINEERING	36		30		20	5	4	2	19	4	1

# APPENDIX A-4 (Continued)

FT = FULL TIME  
PT = PART TIME

STATE - INSTITUTION AND SUBFIELD	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR	4TH YEAR			MASTER	DOCTORATE			BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
GEORGIA											
GEORGIA INSTITUTE OF TECHNOLOGY											
NUCLEAR ENGINEERING	26		26		9	12			16	8	2
FUSION ENERGY					2	7					2
IDAHO											
UNIVERSITY OF IDAHO											
NUCLEAR ENGINEERING						38				7	
CHEMICAL, WITH NUCLEAR OPTION			1						1		
MECHANICAL, WITH NUCLEAR OPTION	6		4						4		
IDAHO STATE UNIVERSITY											
NUCLEAR ENGINEERING						4				1	
GENERAL STUDIES W/NUCLEAR OPTION			1						5		
ILLINOIS											
NORTHWESTERN UNIVERSITY											
NUCLEAR ENGINEERING	9		1		6	2			7	6	3
UNIVERSITY OF ILLINOIS											
NUCLEAR ENGINEERING	33		35	1	29	1	34	1	24	8	10
MECHANICAL, WITH NUCLEAR OPTION							1				
PHYSICS W/ NUCLEAR OPTION							2				

# APPENDIX A-4 (Continued)

FT = FULL TIME  
PT = PART TIME

STATE - INSTITUTION AND SUBFIELD	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR	4TH YEAR			MASTER	DOCTORATE			BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
INDIANA											
UNIVERSITY OF NOTRE DAME MECHANICAL, WITH NUCLEAR OPTION	20		12						12		
PURDUE UNIVERSITY NUCLEAR ENGINEERING ENGINEERING SCIENCE, WITH NUCLEAR OPTION	21 1		13		18	1	19		18	3	3
IOWA											
IOWA STATE UNIVERSITY NUCLEAR ENGINEERING	13		17		15		12		13	9	4
KANSAS											
KANSAS STATE UNIVERSITY NUCLEAR ENGINEERING	16		17		12		6		13	9	3
KENTUCKY											
UNIVERSITY OF KENTUCKY MECHANICAL, WITH NUCLEAR OPTION			4		2				3	1	
LOUISIANA											
LOUISIANA STATE UNIVERSITY NUCLEAR ENGINEERING					5	3				4	

# APPENDIX A-4 (Continued)

FT = FULL TIME  
PT = PART TIME

STATE - INSTITUTION AND SUBFIELD	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR	4TH YEAR			MASTER	DOCTORATE			BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
MAINE											
UNIVERSITY OF MAINE ENGINEERING PHYSICS, WITH NUCLEAR OPTION PHYSICS W/ NUCLEAR OPTION			3		2				5	1	
MARYLAND											
U. S. NAVAL ACADEMY MARINE ENGINEERING			9						8		
UNIVERSITY OF MARYLAND NUCLEAR ENGINEERING	13	2	16		3	7	5	3	10	2	3
MASSACHUSETTS											
MASSACHUSETTS INSTITUTE OF TECHNOLOGY NUCLEAR ENGINEERING					43		109		10	34	20
UNIVERSITY OF LOWELL NUCLEAR ENGINEERING	15		11	1	7	7	3		12	4	
WORCESTER POLYTECHNIC INSTITUTE MECHANICAL, WITH NUCLEAR OPTION	16		15		2				15	1	
MICHIGAN											
UNIVERSITY OF MICHIGAN NUCLEAR ENGINEERING	21	1	24	2	44	1	30		25	21	16



# APPENDIX A-4 (Continued)

FT = FULL TIME  
PT = PART TIME

STATE - INSTITUTION AND SUBFIELD	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR	4TH YEAR			MASTER	DOCTORATE			BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
MICHIGAN (CONTINUED)											
MICHIGAN TECHNICAL UNIVERSITY											
CHEMICAL, WITH NUCLEAR OPTION				8							
ENGINEERING SCIENCE, WITH NUCLEAR OPTION				1							
ELECTRICAL, WITH NUCLEAR OPTION				9							
MECHANICAL, WITH NUCLEAR OPTION				9							
METALLURGICAL				2							
MISSISSIPPI											
MISSISSIPPI STATE UNIVERSITY											
NUCLEAR ENGINEERING	12		19		4				5	1	
MISSOURI											
UNIVERSITY OF MISSOURI, COLUMBIA											
NUCLEAR ENGINEERING					23		16			11	8
UNIVERSITY OF MISSOURI, ROLLA											
NUCLEAR ENGINEERING	16		16		8	3	3		5		1
NEBRASKA											
UNIVERSITY OF NEBRASKA, LINCOLN											
MECHANICAL, WITH NUCLEAR OPTION	2		4						6		

# APPENDIX A-4 (Continued)

FT = FULL TIME  
PT = PART TIME

STATE - INSTITUTION AND SUBFIELD	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR	4TH YEAR			MASTER	DOCTORATE			BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
NEW JERSEY											
STEVENS INSTITUTE OF TECHNOLOGY PHYSICS W/ NUCLEAR OPTION			2								
NEW JERSEY INSTITUTE OF TECHNOLOGY CHEMICAL, WITH NUCLEAR OPTION	3		1						6		
ENGINEERING SCIENCE, WITH NUCLEAR OPTION	6	1	10						4		
ELECTRICAL, WITH NUCLEAR OPTION	3		4						3		
MECHANICAL, WITH NUCLEAR OPTION	4		5		1						
NEW MEXICO											
UNIVERSITY OF NEW MEXICO NUCLEAR ENGINEERING ENERGY AND POWER	7 6	1	1 4		11 6	10	8 8		1 3	8	1
NEW YORK											
SUNY, MARITIME COLLEGE NUCLEAR ENGINEERING	8		9	1					9		
POLYTECHNIC INSTITUTE OF NEW YORK NUCLEAR ENGINEERING	3	1	1	1	1	28		2	4	18	
STATE UNIVERSITY OF NEW YORK, BUFFALO NUCLEAR ENGINEERING			5						5		
CORNELL UNIVERSITY NUCLEAR ENGINEERING					6		5			3	1

# APPENDIX A-4 (Continued)

FT = FULL TIME  
PT = PART TIME

STATE - INSTITUTION AND SUBFIELD	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR	4TH YEAR			MASTER	DOCTORATE			BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
NEW YORK (CONTINUED)											
COLUMBIA UNIVERSITY NUCLEAR ENGINEERING	4		2		3	7	10	6	3	4	1
MANHATTAN COLLEGE (NEW YORK) MECHANICAL, WITH NUCLEAR OPTION			31						19		
CLARKSON COLLEGE OF TECHNOLOGY CHEMICAL, WITH NUCLEAR OPTION	10		8						7		
ELECTRICAL, WITH NUCLEAR OPTION	2		1						4		
MECHANICAL, WITH NUCLEAR OPTION	2		1						2		
RENSSELAER POLYTECHNIC INSTITUTE NUCLEAR ENGINEERING	12		12		28	5	29	1	20	19	6
NORTH CAROLINA											
NORTH CAROLINA STATE UNIVERSITY NUCLEAR ENGINEERING	31		25		10	2	20		11	3	3
OHIO											
UNIVERSITY OF CINCINNATI NUCLEAR ENGINEERING	24		35		12	43	13	2	21	8	2
CASE WESTERN RESERVE UNIVERSITY ELECTRICAL, WITH NUCLEAR OPTION					1						
OHIO STATE UNIVERSITY NUCLEAR ENGINEERING					13	11	8	6		4	
ENGINEERING SCIENCE, WITH NUCLEAR OPTION	2	3							3		
MECHANICAL, WITH NUCLEAR OPTION	6	5							6		
METALLURGICAL	1										

# APPENDIX A-4 (Continued)

FT = FULL TIME  
PT = PART TIME

STATE - INSTITUTION AND SUBFIELD	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR	4TH YEAR			MASTER	DOCTORATE			BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
OHIO (CONTINUED)											
AIR FORCE INSTITUTE OF TECHNOLOGY NUCLEAR ENGINEERING					28		3	1		12	2
YOUNGSTOWN STATE UNIVERSITY (OHIO)											
CHEMICAL, WITH NUCLEAR OPTION	3		11						6		
ELECTRICAL, WITH NUCLEAR OPTION	1		7								
MECHANICAL, WITH NUCLEAR OPTION			2								
CIVIL ENGINEERING	1										
INDUSTRIAL ENGINEERING WITH NUCLEAR OPTI			1								
OKLAHOMA											
UNIVERSITY OF OKLAHOMA NUCLEAR ENGINEERING	14		8		7		1		9	2	1
OREGON											
OREGON STATE UNIVERSITY NUCLEAR ENGINEERING	23		13		6		7		22	5	1
PENNSYLVANIA											
CARNEGIE-MELLON UNIVERSITY NUCLEAR ENGINEERING					1	21	1	1		3	3
PENNSYLVANIA STATE UNIVERSITY NUCLEAR ENGINEERING	50		46		24		16		31	11	3

# APPENDIX A-4 (Continued)

FT = FULL TIME  
PT = PART TIME

STATE - INSTITUTION AND SUBFIELD	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR		4TH YEAR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
TENNESSEE											
TENNESSEE TECHNOLOGICAL UNIVERSITY ENGINEERING SCIENCE, WITH NUCLEAR OPTION	5		4						3		
UNIVERSITY OF TENNESSEE NUCLEAR ENGINEERING	16		14		25	2	14	3	11		4
TEXAS											
THE UNIVERSITY OF TEXAS AT AUSTIN MECHANICAL, WITH NUCLEAR OPTION	20		20		9	2	4			4	
TEXAS A&M UNIVERSITY NUCLEAR ENGINEERING	34		28		23	6	8		40	9	
UTAH											
UTAH STATE UNIVERSITY MECHANICAL, WITH NUCLEAR OPTION			28		8				30	4	
BRIGHAM YOUNG CHEMICAL, WITH NUCLEAR OPTION				18					10		
UNIVERSITY OF UTAH NUCLEAR ENGINEERING					2		4	1		1	
CHEMICAL, WITH NUCLEAR OPTION			4		1				4		
ELECTRICAL, WITH NUCLEAR OPTION			3						4		
MECHANICAL, WITH NUCLEAR OPTION			13		2			1	18	1	

# APPENDIX A-4 (Continued)

FT = FULL TIME  
PT = PART TIME

STATE - INSTITUTION AND SUBFIELD	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR	4TH YEAR			MASTER	DOCTORATE			BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
<b>VIRGINIA</b>											
VIRGINIA POLYTECHNIC INSTITUTE											
NUCLEAR ENGINEERING	4		3		6	4	6	1	2	2	1
CHEMICAL, WITH NUCLEAR OPTION	6		2						2		
ENGINEERING SCIENCE, WITH NUCLEAR OPTION	2										
ELECTRICAL, WITH NUCLEAR OPTION	6		2						2		
MECHANICAL, WITH NUCLEAR OPTION	6		10						9		
INDUSTRIAL ENGINEERING WITH NUCLEAR OPTI	2		1						1		
CIVIL ENGINEERING	2		1						1		
METALLURGICAL, WITH NUCLEAR OPTION			1								
AERONAUTICAL AND OCEANOGRAPHIC, WITH NUC			1								
UNIVERSITY OF VIRGINIA											
NUCLEAR ENGINEERING	19		16		19	3	7	1	11	5	5
<b>WASHINGTON</b>											
UNIVERSITY OF WASHINGTON											
NUCLEAR ENGINEERING					23	12	10	3		7	5
<b>WISCONSIN</b>											
UNIVERSITY OF WISCONSIN, MADISON											
NUCLEAR ENGINEERING	23		38		30	2	43		15	7	5
TOTALS	710	14	806	32	0	0	624	252	527	50	
		724		838		0		876		577	
									642	315	131

APPENDIX A-5  
NUCLEAR ENGINEERING NUMBER OF DEGREES AND  
ENROLLMENTS BY SUBFIELD IN FALL 1981

FT = FULL TIME  
PT = PART TIME

CURRICULUM -----	ENROLLMENT								DEGREES		
	3RD	YEAR	4TH	YEAR	MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT	-----	-----	-----
NUCLEAR ENGINEERING	539	5	515	7	575	230	481	46	418	289	126
CHEMICAL, WITH NUCLEAR OPTION	24		37	18	1				30		
ENGINEERING SCIENCE, WITH NUCLEAR OPTION	26	4	33	7	1	9			22		
ELECTRICAL, WITH NUCLEAR OPTION	17		29		1				14		
MECHANICAL, WITH NUCLEAR OPTION	90	5	166		42	13	37	3	135	25	2
OTHER ENGINEERING, WITH NUCLEAR OPTIONS	14		26		4		9	1	23	1	3

# APPENDIX A-6

## PLACEMENT OF NUCLEAR ENGINEERING GRADUATES BY DEGREE LEVEL, 1981

Placement	Bachelor's			Master's			Doctoral		
	Number	Percent	Number of Foreign Nationals	Number	Percent	Number of Foreign Nationals	Number	Percent	Number of Foreign Nationals
Further study	117	18	18	60	19	27	4	3	3
U.S. academic employment	12	2	1	6	2	2	10	8	4
Federal government employment	6	1	-	13	4	2	7	6	-
GOCO (government-owned/contractor-operated installations)	10	2	-	23	7	1	16	12	1
State and local government	5	1	-	3	1	-	3	2	1
Industrial employment	245	38	9	85	27	9	45	34	24
Foreign employment	2	*	1	22	7	20	24	18	23
Military	46	7	-	24	8	-	3	2	-
Other	1	*	-	0	0	-	1	1	-
Seeking employment	6	1	1	4	1	1	1	1	1
Unknown	<u>192</u>	<u>30</u>	<u>16</u>	<u>75</u>	<u>24</u>	<u>21</u>	<u>17</u>	<u>13</u>	<u>5</u>
Totals	642	100	46	315	100	83	131	100	62

\*Less than 0.5 percent.

NOTE: Percentages are rounded to nearest whole number.

Source: U.S. Department of Energy.



# APPENDIX A-7

## REPORTED PARTICIPATION BY FOREIGN NATIONALS, WOMEN, AND MINORITIES IN NUCLEAR ENGINEERING PROGRAMS, 1976-1981

	Enrollments (Fall Term)								Degrees Granted (Year Ending June 30)							
	3rd Year		4th Year		Master's Candidates		Doctoral Candidates		Bachelor's		Master's		Doctoral			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent		
<u>Foreign Nationals</u>																
1976	63	7	55	6	312	23	192	33	20	3	81	17	47	32		
1977	80	8	72	7	312	27	202	35	32	4	127	23	36	30		
1978	67	10	75	10	313	32	275	50	41	7	103	26	35	37		
1979	79	10	72	8	265	29	285	47	44	7	110	27	29	30		
1980	58	8	61	8	218	25	314	51	36	5	104	28	49	42		
1981	43	6	79	9	205	23	262	45	42	7	81	26	63	48		
<u>Women</u>																
1976	39	4	34	4	31	2	10	2	14	2	7	2	-	-		
1977	59	6	43	4	42	4	20	3	15	2	13	2	2	2		
1978	55	8	49	6	45	5	7	1	28	5	9	2	4	4		
1979	61	7	10	7	55	5	21	3	36	6	12	2	1	1		
1980	69	9	68	9	64	7	31	5	44	7	19	5	-	-		
1981	65	9	57	7	55	6	26	5	46	7	22	7	6	5		
<u>Blacks</u>																
1976	19	2	8	1	18	1	4	1	6	1	2	**	-	-		
1977	8	1	12	1	14	1	4	1	1	**	6	1	1	1		
1978	4	1	6	1	9	1	4	1	7	1	5	1	1	1		
1979	9	1	10	1	15	1	5	1	5	1	-	-	1	1		
1980	10	1	9	1	12	1	8	1	7	1	4	1	-	-		
1981	8	1	5	1	9	1	6	1	4	1	4	1	1	1		
<u>Hispanic Citizens</u>																
1976	8	1	7	1	21*	2	2	**	4	**	10*	3	-	-		
1977	7	1	5	**	10*	1	2	**	1	**	3*	1	1	1		
1978	12	1	8	1	11	1	2	**	4	1	4	1	-	-		
1979	6	1	9	1	11	1	1*	**	10	2	2	**	1	1		
1980	10	1	12	2	11	1	3	**	6	1	4	1	-	-		
1981	14	2	14	2	10	1	10	2	8	1	8	3	-	-		

# APPENDIX A-7 (Continued)

	Enrollments (Fall Term)								Degrees Granted (Year Ending June 30)							
	3rd Year		4th Year		Master's Candidates		Doctoral Candidates		Bachelor's		Master's		Doctoral			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<u>Asian Americans or Pacific Islanders</u>																
1976	4	**	5	1	25	2	5	1	4	**	2	**	3	2		
1977	7	**	4	**	15	1	14	2	3	**	7	1	2	2		
1978	5	1	10	1	21	2	13	2	3	1	4	1	2	2		
1979	7	1	12	1	26	3	17	2	7	1	13	3	6	6		
1980	9	1	8	1	21	2	17	3	6	1	11	3	3	3		
1981	8	1	12	1	18	2	14	2	8	1	5	2	3	2		
<u>American Indians or Alaskan Natives</u>																
1976	-	-	-	-	1	**	-	-	-	-	1	**	-	-		
1977	-	-	1	**	1	**	1	**	-	-	-	-	-	-		
1978	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
1979	-	-	-	-	-	-	-	-	-	-	1	**	-	-		
1980	2	**	1	**	1	**	-	-	-	-	-	-	-	-		
1981	1	**	1	**	1	**	1	**	-	-	-	-	-	-		

\*These figures do not include the University of Puerto Rico.

\*\*Less than 0.5 percent.

Note: Percentages of enrollment and degrees granted are based on total enrollment and degrees granted by all institutions reporting in that respective year.

Source: U.S. Department of Energy.

# APPENDIX A-8

## NUCLEAR ENGINEERING MINORITIES, WOMEN, AND FOREIGN NATIONALS, 1981

FT = FULL TIME

PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR	4TH YEAR			MASTER	DOCTORATE			BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
ALABAMA											
TUSKEGEE INSTITUTE											
FOREIGN NATIONAL MALES					1						
ARIZONA											
ARIZONA STATE UNIVERSITY											
FOREIGN NATIONAL MALES	3		2						1		
HISPANIC FEMALES, U. S. CITIZENS			1								
UNIVERSITY OF ARIZONA											
FOREIGN NATIONAL MALES	1		4		6		3		2	3	1
FOREIGN NATIONAL FEMALES							1				
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	3		2					1	1		
HISPANIC MALES, U. S. CITIZENS						1					
HISPANIC FEMALES, U. S. CITIZENS	1		1								
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.									1		
ASIAN OR PACIFIC ISL. FEMALES, U.S. CIT.					1						
CALIFORNIA											
UNIVERSITY OF CALIFORNIA, BERKELEY											
FOREIGN NATIONAL MALES	2									5	7
FOREIGN NATIONAL FEMALES										5	
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	2		1								
HISPANIC MALES, U. S. CITIZENS	1										
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.			1								
UNIVERSITY OF CALIFORNIA, LOS ANGELES											
FOREIGN NATIONAL MALES					6		15				
FOREIGN NATIONAL FEMALES							1				
HISPANIC MALES, U. S. CITIZENS					2		2				
HISPANIC FEMALES, U. S. CITIZENS							4				

APPENDIX A-8 (Continued)

FT = FULL TIME  
PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR		4TH YEAR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
CALIFORNIA (CONTINUED)											
CALIFORNIA STATE UNIVERSITY, NORTHRIDGE											
FOREIGN NATIONAL MALES			4	2							
WHITE FEMALES, NOT HISPANIC, U.S. CIT.							1				
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.			1	1			1				
UNIVERSITY OF CALIFORNIA, SANTA BARBARA											
FOREIGN NATIONAL MALES					7		2		3		
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	2		1						2	1	
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.			1							1	
STANFORD UNIVERSITY											
HISPANIC MALES, U. S. CITIZENS										1	
DISTRICT OF COLUMBIA											
CATHOLIC UNIVERSITY OF AMERICA											
FOREIGN NATIONAL MALES							1				
FOREIGN NATIONAL FEMALES											1
WHITE FEMALES, NOT HISPANIC, U.S. CIT.			1				1				
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.							2				
HOWARD UNIVERSITY											
FOREIGN NATIONAL MALES					5					1	
BLACK MALES, NOT HISPANIC, U.S. CIT.					2					1	

# APPENDIX A-8 (Continued)

FT = FULL TIME  
PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR	4TH YEAR			MASTER	DOCTORATE			BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
FLORIDA											
UNIVERSITY OF FLORIDA											
FOREIGN NATIONAL MALES	3		4		7	1	2		1		1
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	4								1		
BLACK MALES, NOT HISPANIC, U.S. CIT.			1						1		
HISPANIC MALES, U. S. CITIZENS	2		3		1				3		
HISPANIC FEMALES, U. S. CITIZENS									1		
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.	2						1				
GEORGIA											
GEORGIA INSTITUTE OF TECHNOLOGY											
FOREIGN NATIONAL MALES			1				7			1	2
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	3								1		
BLACK MALES, NOT HISPANIC, U.S. CIT.	1				1						
HISPANIC MALES, U. S. CITIZENS			1				1				
AMER. IND., ALASK NAT. MALES, U.S. CIT.							1				
IDAHO											
UNIVERSITY OF IDAHO											
WHITE FEMALES, NOT HISPANIC, U.S. CIT.							5			1	
BLACK MALES, NOT HISPANIC, U.S. CIT.							1				
BLACK FEMALES, NOT HISPANIC, U.S. CIT.							1				
IDAHO STATE UNIVERSITY											
FOREIGN NATIONAL MALES									2		

## APPENDIX A-8 (Continued)

 FT = FULL TIME  
 PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR	4TH YEAR			MASTER	DOCTORATE			BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
<b>ILLINOIS</b>											
NORTHWESTERN UNIVERSITY											
FOREIGN NATIONAL MALES	1				1		1				2
FOREIGN NATIONAL FEMALES										1	
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	2										
BLACK MALES, NOT HISPANIC, U.S. CIT.	1										
HISPANIC MALES, U. S. CITIZENS									1		
UNIVERSITY OF ILLINOIS											
FOREIGN NATIONAL MALES					6		12	1		2	4
FOREIGN NATIONAL FEMALES										1	
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	4		2		1				2		
BLACK MALES, NOT HISPANIC, U.S. CIT.							1				
HISPANIC MALES, U. S. CITIZENS	1				1						
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.	1				2		1		1		
AMER. IND., ALASK. NAT. MALES, U.S. CIT.					1						
<b>INDIANA</b>											
UNIVERSITY OF NOTRE DAME											
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	2		1								
PURDUE UNIVERSITY											
FOREIGN NATIONAL MALES					8	1	13			1	2
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	2		2						5	1	
HISPANIC MALES, U. S. CITIZENS			1								

APPENDIX A-8 (Continued)

FT = FULL TIME  
PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR	4TH YEAR			MASTER	DOCTORATE					
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
IOWA											
IOWA STATE UNIVERSITY											
FOREIGN NATIONAL MALES	1		2		8		10		1	5	4
WHITE FEMALES, NOT HISPANIC, U.S. CIT.			2		1				1		
KANSAS											
KANSAS STATE UNIVERSITY											
FOREIGN NATIONAL MALES	1		2		1		2		1		1
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	2		3		2		1		1	1	
KENTUCKY											
UNIVERSITY OF KENTUCKY											
FOREIGN NATIONAL MALES					2					1	
LOUISIANA											
LOUISIANA STATE UNIVERSITY											
FOREIGN NATIONAL MALES					1					1	
BLACK MALES, NOT HISPANIC, U.S. CIT.										1	
MAINE											
UNIVERSITY OF MAINE											
WHITE FEMALES, NOT HISPANIC, U.S. CIT.									3		

APPENDIX A-8 (Continued)

FT = FULL TIME  
PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR	4TH YEAR			MASTER	DOCTORATE			BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
<b>MARYLAND</b>											
U. S. NAVAL ACADEMY											
WHITE FEMALES, NOT HISPANIC, U.S. CIT.									1		
UNIVERSITY OF MARYLAND											
FOREIGN NATIONAL MALES	1	1	1		2	3	1		2		1
FOREIGN NATIONAL FEMALES			2								
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	2		2					1	2		1
BLACK MALES, NOT HISPANIC, U.S. CIT.	1		1								
<b>MASSACHUSETTS</b>											
MASSACHUSETTS INSTITUTE OF TECHNOLOGY											
FOREIGN NATIONAL MALES					20		45			12	10
FOREIGN NATIONAL FEMALES							2				
WHITE FEMALES, NOT HISPANIC, U.S. CIT.					5		5			1	1
BLACK MALES, NOT HISPANIC, U.S. CIT.							1				
HISPANIC MALES, U. S. CITIZENS							1			2	
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.					1		4			2	
ASIAN OR PACIFIC ISL. FEMALES, U.S. CIT.							1				
UNIVERSITY OF LOWELL											
FOREIGN NATIONAL MALES				1							
WHITE FEMALES, NOT HISPANIC, U.S. CIT.				1					1		
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.					1						
WORCESTER POLYTECHNIC INSTITUTE											
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	2		1						2		



APPENDIX A-8 (Continued)

FT = FULL TIME  
PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR	4TH YEAR			MASTER	DOCTORATE			BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
MICHIGAN											
UNIVERSITY OF MICHIGAN											
FOREIGN NATIONAL MALES	3		3	1	15	13				7	7
FOREIGN NATIONAL FEMALES	1					1					
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	6	1			2	1					
BLACK MALES, NOT HISPANIC, U.S. CIT.	1				1						
BLACK FEMALES, NOT HISPANIC, U.S. CIT.									1		
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.			1		1	1					
MISSISSIPPI											
MISSISSIPPI STATE UNIVERSITY											
FOREIGN NATIONAL MALES					1						
WHITE FEMALES, NOT HISPANIC, U.S. CIT.									2		
MISSOURI											
UNIVERSITY OF MISSOURI, COLUMBIA											
FOREIGN NATIONAL MALES					7	11				5	6
WHITE FEMALES, NOT HISPANIC, U.S. CIT.					5					1	
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.						1					
UNIVERSITY OF MISSOURI, ROLLA											
FOREIGN NATIONAL MALES				1							
WHITE FEMALES, NOT HISPANIC, U.S. CIT.				1		3					
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.					3				1		1

APPENDIX A-8 (Continued)

FT = FULL TIME  
PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR	4TH YEAR			MASTER	DOCTORATE			BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
NEBRASKA											
UNIVERSITY OF NEBRASKA, LINCOLN FOREIGN NATIONAL MALES	2		4								
NEW JERSEY											
NEW JERSEY INSTITUTE OF TECHNOLOGY FOREIGN NATIONAL MALES	2		3						2		
HISPANIC MALES, U. S. CITIZENS	2		2						1		
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.	1		1						2		
NEW MEXICO											
UNIVERSITY OF NEW MEXICO FOREIGN NATIONAL MALES	1				6	1	2	1		1	
FOREIGN NATIONAL FEMALES									1		
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	1		1		1	2		1		2	
BLACK MALES, NOT HISPANIC, U.S. CIT.					1	1		1		1	
HISPANIC MALES, U. S. CITIZENS	1						1				
HISPANIC FEMALES, U. S. CITIZENS										1	
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.			1								
NEW YORK											
SUNY, MARITIME COLLEGE HISPANIC MALES, U. S. CITIZENS			1								
STATE UNIVERSITY OF NEW YORK, BUFFALO FOREIGN NATIONAL MALES			1								
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.			1								

APPENDIX A-8 (Continued)

FT = FULL TIME  
PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR	4TH YEAR			MASTER	DOCTORATE			BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
NEW YORK (CONTINUED)											
CORNELL UNIVERSITY											
FOREIGN NATIONAL MALES					2		1				
BLACK MALES, NOT HISPANIC, U.S. CIT.										1	
ASIAN OR PACIFIC ISL. FEMALES, U.S. CIT.							1				
COLUMBIA UNIVERSITY											
FOREIGN NATIONAL MALES	3		1		2	1	7	2	1	1	
FOREIGN NATIONAL FEMALES										1	1
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	1					1	1			1	
HISPANIC MALES, U. S. CITIZENS					1				1		
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.						1	1				
MANHATTAN COLLEGE (NEW YORK)											
FOREIGN NATIONAL MALES				2							
CLARKSON COLLEGE OF TECHNOLOGY											
WHITE FEMALES, NOT HISPANIC, U.S. CIT.				1							
RENSSELAER POLYTECHNIC INSTITUTE											
FOREIGN NATIONAL MALES	1		1		10	1	24			7	1
FOREIGN NATIONAL FEMALES					1						1
WHITE FEMALES, NOT HISPANIC, U.S. CIT.					1				3		
BLACK MALES, NOT HISPANIC, U.S. CIT.				2			2		1		
HISPANIC MALES, U. S. CITIZENS	1										
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.	1										

APPENDIX A-8 (Continued)

FT = FULL TIME  
PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR		4TH YEAR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
NORTH CAROLINA											
NORTH CAROLINA STATE UNIVERSITY											
FOREIGN NATIONAL MALES	2		3		4	1	18		1	1	2
FOREIGN NATIONAL FEMALES											1
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	2		1		1				2		
BLACK MALES, NOT HISPANIC, U.S. CIT.	1						1				
ASIAN OR PACIFIC ISL. FEMALES, U.S. CIT.					1						
OHIO											
UNIVERSITY OF CINCINNATI											
FOREIGN NATIONAL MALES					6		11			7	
FOREIGN NATIONAL FEMALES					3						
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	2		3								
BLACK MALES, NOT HISPANIC, U.S. CIT.			1								
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.	1								1		
OHIO STATE UNIVERSITY											
FOREIGN NATIONAL MALES					3		3	1		1	
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	2					2		1			
AIR FORCE INSTITUTE OF TECHNOLOGY											
WHITE FEMALES, NOT HISPANIC, U.S. CIT.					1						
BLACK MALES, NOT HISPANIC, U.S. CIT.					1						
HISPANIC MALES, U. S. CITIZENS										1	
YOUNGSTOWN STATE UNIVERSITY(OHIO)											
FOREIGN NATIONAL MALES	2		3								
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	1		3								
BLACK MALES, NOT HISPANIC, U.S. CIT.			1								

## APPENDIX A-8 (Continued)

 FT = FULL TIME  
 PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR	4TH YEAR			MASTER	DOCTORATE			BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
OKLAHOMA											
UNIVERSITY OF OKLAHOMA											
FOREIGN NATIONAL MALES	1		1		5		1		3	2	1
WHITE FEMALES, NOT HISPANIC, U.S. CIT.			1								
BLACK MALES, NOT HISPANIC, U.S. CIT.	1										
HISPANIC MALES, U. S. CITIZENS			1								
HISPANIC FEMALES, U. S. CITIZENS	1										
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.									1		
AMER. IND., ALASK. NAT. MALES, U.S. CIT.	1										
OREGON											
OREGON STATE UNIVERSITY											
FOREIGN NATIONAL MALES	3		3				4		7	1	
WHITE FEMALES, NOT HISPANIC, U.S. CIT.			1						2		
BLACK MALES, NOT HISPANIC, U.S. CIT.	1										
HISPANIC MALES, U. S. CITIZENS	1										
AMER. IND., ALASK. NAT. MALES, U.S. CIT.	1				2				2	1	1
PENNSYLVANIA											
CARNEGIE-MELLON UNIVERSITY											
FOREIGN NATIONAL MALES											1
WHITE FEMALES, NOT HISPANIC, U.S. CIT.						1				1	
HISPANIC MALES, U. S. CITIZENS										1	
HISPANIC FEMALES, U. S. CITIZENS					1					1	
PENNSYLVANIA STATE UNIVERSITY											
FOREIGN NATIONAL MALES					12		9			3	
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	3		6						3		
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.					1						

APPENDIX A-8 (Continued)

FT = FULL TIME  
PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR	4TH YEAR			MASTER	DOCTORATE			BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
TENNESSEE											
TENNESSEE TECHNOLOGICAL UNIVERSITY											
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	1										
ASIAN OR PACIFIC ISL. FEMALES, U.S. CIT.	1										
UNIVERSITY OF TENNESSEE											
FOREIGN NATIONAL MALES	3		4								
WHITE FEMALES, NOT HISPANIC, U.S. CIT.							1				
HISPANIC MALES, U. S. CITIZENS					3		1				
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.					1		2				1
TEXAS											
THE UNIVERSITY OF TEXAS AT AUSTIN											
FOREIGN NATIONAL MALES					2		3			1	
WHITE FEMALES, NOT HISPANIC, U.S. CIT.					2						
TEXAS A&M UNIVERSITY											
FOREIGN NATIONAL MALES	3		2		1		2		2	2	
FOREIGN NATIONAL FEMALES			1								
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	5		2		4				4		
BLACK MALES, NOT HISPANIC, U.S. CIT.	1		1							1	
HISPANIC MALES, U. S. CITIZENS	3		2								
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.			1								
UTAH											
UTAH STATE UNIVERSITY											
FOREIGN NATIONAL MALES			7		2				4		
WHITE FEMALES, NOT HISPANIC, U.S. CIT.			1						2		
AMER. IND., ALASK. NAT. MALES, U.S. CIT.			1								

APPENDIX A-8 (Continued)

FT = FULL TIME  
PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR	4TH YEAR			MASTER	DOCTORATE			BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
UTAH (CONTINUED)											
BRIGHAM YOUNG											
FOREIGN NATIONAL MALES				2					2		
HISPANIC FEMALES, U. S. CITIZENS				2					1		
UNIVERSITY OF UTAH											
FOREIGN NATIONAL MALES			3			2			4		
WHITE FEMALES, NOT HISPANIC, U.S. CIT.			1						1		
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.			2								
VIRGINIA											
VIRGINIA POLYTECHNIC INSTITUTE											
FOREIGN NATIONAL MALES							5	1			
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	4		2		1						
UNIVERSITY OF VIRGINIA											
FOREIGN NATIONAL MALES					1		1				2
FOREIGN NATIONAL FEMALES					1						
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	1		3			1				1	
BLACK MALES, NOT HISPANIC, U.S. CIT.									1		
WASHINGTON											
UNIVERSITY OF WASHINGTON											
FOREIGN NATIONAL MALES					8	3	6			2	2
FOREIGN NATIONAL FEMALES					2						
BLACK MALES, NOT HISPANIC, U.S. CIT.											1
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.								1		1	

APPENDIX A-8 (Continued)

FT = FULL TIME  
PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR	4TH YEAR			MASTER	DOCTORATE			BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
WISCONSIN											
UNIVERSITY OF WISCONSIN, MADISON											
FOREIGN NATIONAL MALES	2		7		15		11		2		2
FOREIGN NATIONAL FEMALES			1		1		1				
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	1		1		2		2				
TOTALS	133	2	152	8	0	0	252	34	296	12	
	135		160			0	286		308		
									104	110	69



## APPENDIX A-9

### NUCLEAR ENGINEERING CURRICULUM OR OPTIONS BY UNDERGRADUATE OR GRADUATE INSTITUTIONS, FALL 1981

UG-Undergraduate  
G-Graduate

#### Nuclear Engineering

AL-Tuskegee Institute - G  
AZ-University of Arizona - UG,G  
CA-University of California,  
Berkeley - UG,G  
-University of California,  
Santa Barbara - UG,G  
DC-Howard University - G  
FL-University of Florida - UG,G  
GA-Georgia Institute of Technology - UG,G  
ID-University of Idaho - G  
-Idaho State University - G  
IL-Northwestern University - UG,G  
-University of Illinois - UG,G  
IN-Purdue University - UG,G  
IA-Iowa State University - UG,G  
KS-Kansas State University - UG,G  
LA-Louisiana State University - G  
MD-University of Maryland - UG,G  
MA-Massachusetts Institute of  
Technology - UG,G  
-University of Lowell - UG,G  
MI-University of Michigan - UG,G  
MS-Mississippi State University - UG,G  
MO-University of Missouri, Columbia - G  
-University of Missouri, Rolla - UG,G  
NM-University of New Mexico - UG,G

NY-State University of New York,  
Maritime College - UG  
-Polytechnic Institute of  
New York - UG,G  
-State University of New York,  
Buffalo - UG  
-Columbia University - UG,G  
-Cornell University - G  
-Rensselaer Polytechnic Institute - UG,G  
NC-North Carolina State University,  
Chapel Hill - UG,G  
OH-University of Cincinnati - UG,G  
-Ohio State University - G  
-Air Force Institute of Technology - G  
OK-University of Oklahoma - UG,G  
OR-Oregon State University - UG,G  
PA-Carnegie-Mellon University - G  
-Pennsylvania State University - UG,G  
TN-University of Tennessee, Knoxville - UG,G  
TX-Texas A&M University - UG,G  
UT-University of Utah - G  
VA-Virginia Polytechnic Institute - UG,G  
-University of Virginia - UG,G  
WA-University of Washington - G  
WI-University of Wisconsin - UG,G

APPENDIX A-9 (Continued)

UG - Undergraduate  
G - Graduate

Chemical Engineering

AZ-Arizona State University - UG  
CA-University of California,  
Berkeley - UG  
ID-University of Idaho - UG  
MI-Michigan Technical University - UG  
NJ-New Jersey Institute of Technology - UG

NY-Clarkson College of Technology - UG  
OH-Youngstown State University - UG  
UT-Brigham Young University - UG  
-University of Utah - UG,G  
VA-Virginia Polytechnic Institute -UG

Engineering Science

AZ-Arizona State University - UG,G  
CA-California State University,  
Northridge - UG,G  
IN-Purdue University - UG  
MI-Michigan Technical University - UG

NJ-New Jersey Institute of  
Technology - UG  
OH-Ohio State University - UG  
TN-Tennessee Technological  
University - UG  
VA-Virginia Polytechnic Institute - UG

Electrical Engineering

CA-University of California,  
-Berkeley - UG  
MI-Michigan Technical University - UG  
NJ-New Jersey Institute of  
Technology - UG,G  
NY-Clarkson College of Technology - UG

OH-Youngstown State University - UG  
-Case Western Reserve University - G  
UT-University of Utah - UG  
VA-Virginia Polytechnic Institute - UG

APPENDIX A-9 (Continued)

UG-Undergraduate  
G-Graduate

Mechanical Engineering

AZ-Arizona State University - UG,G  
CA-University of California,  
Berkeley - UG  
-University of California,  
Los Angeles - UG,G  
-Stanford University - G  
CO-Colorado State University - G  
DC-Catholic University of  
America - UG,G  
ID-University of Idaho - UG  
IL-University of Illinois - G  
IN-University of Notre Dame - UG  
KY-University of Kentucky - UG,G  
MA-Worcester Polytechnic  
Institute - UG,G  
MI-Michigan Technical University - UG

NE-University of Nebraska,  
Lincoln - UG  
NJ-New Jersey Institute of  
Technology - UG,G  
NY-Manhattan College - UG  
-Clarkson College - UG  
OH-Ohio State University - UG  
-Youngstown State University - UG  
TX-University of Texas at  
Austin - UG,G  
UT-Utah State University - UG,G  
-University of Utah - UG,G  
VA-Virginia Polytechnic  
Institute - UG

Aerospace

VA-Virginia Polytechnic Institute - UG

Energy and Power

NM-University of New Mexico - UG

Fusion Energy

GA-Georgia Institute of Technology - G

Civil Engineering

OH-Youngstown State University - UG  
VA-Virginia Polytechnic Institute - UG

Engineering Physics

ME-University of Miami - UG

General Studies

ID-Idaho State University - UG

APPENDIX A-9 (Continued)

UG-Undergraduate  
G-Graduate

Industrial Engineering

CA-University of California,  
Berkeley - UG  
OH-Youngstown State University - UG  
VA-Virginia Polytechnic Institute - UG

Materials

VA-Virginia Polytechnic  
Institute - UG

Marine Engineering

MD-U.S. Naval Academy - UG

Metallurgical

MI-Michigan Technical University - UG  
OH-Ohio State University - UG

Physics

CO-University of Colorado - G  
IL-University of Illinois - G  
ME-University of Maine - G  
NJ-Stevens Institute of Technology - UG

APPENDIX A-10  
NUCLEAR ENGINEERING ENROLLMENTS AND DEGREES BY STATE AND REGION, 1981

FT = FULL TIME  
PT = PART TIME

REGION - STATE	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR	4TH YEAR			MASTER	DOCTORATE			BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
REGION I - NEW ENGLAND											
MAINE			3		2				5	1	
MASSACHUSETTS	31		26	1	52	7	112		37	39	20
TOTAL	31		29	1	54	7	112		42	40	20
REGION II - MIDDLE ATLANTIC											
MARYLAND	13	2	25		3	7	5	3	18	2	3
NEW JERSEY	16	1	22		1				13		
NEW YORK	41	1	70	2	38	40	44	9	73	44	8
PENNSYLVANIA	50		46		25	21	17	1	31	14	6
TOTAL	120	4	163	2	67	68	66	13	135	60	17
REGION III - EAST NORTH-CENTRAL											
ILLINOIS	42		36	1	35	1	39	1	31	14	13
INDIANA	42		25		18	1	19		30	3	3
MICHIGAN	21	1	53	2	44	1	30		25	21	16
OHIO	38	8	56		54	54	24	9	36	24	4
WISCONSIN	23		38		30	2	43		15	7	5
TOTAL	166	9	208	3	181	59	155	10	137	69	41

APPENDIX A-10 (Continued)

FT = FULL TIME  
PT = PART TIME

REGION - STATE	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR	4TH YEAR			MASTER	DOCTORATE			BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
REGION IV - WEST NORTH-CENTRAL											
IOWA	13		17		15		12		13	9	4
KANSAS	16		17		12		6		13	9	3
MISSOURI	16		16		31	3	19		5	11	9
NEBRASKA	2		4						6		
TOTAL	47		54		58	3	37		37	29	16
REGION V - SOUTH ATLANTIC											
DISTRICT OF COLUMBIA	1		2		8	10		2		6	1
FLORIDA	36		30		20	5	4	2	19	4	1
GEORGIA	26		26		11		19		16	8	4
NORTH CAROLINA	31		25		10	2	20		11	3	3
VIRGINIA	47		37		25	7	13	2	28	7	6
TOTAL	141		120		74	24	56	6	74	28	15
REGION VI - EAST SOUTH-CENTRAL											
ALABAMA					1						
KENTUCKY			4		2				3	1	
MISSISSIPPI	12		19		4				5	1	
TENNESSEE	21		18		25	2	14	3	14		4
TOTAL	33		41		32	2	14	3	22	2	4

# APPENDIX A-10 (Continued)

FT = FULL TIME  
PT = PART TIME

REGION - STATE	ENROLLMENT - FALL 1981								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1980 - JUNE 1981		
	3RD YEAR	4TH YEAR			MASTER	DOCTORATE			BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
REGION VII - WEST SOUTH-CENTRAL											
LOUISIANA					5	3				4	
OKLAHOMA	14		8		7		1		9	2	1
TEXAS	54		48		32	8	12		40	13	
TOTAL	68		56		44	11	13		49	19	1
REGION VIII - MOUNTAIN											
ARIZONA	29		30	1	17	3	8	4	25	10	1
COLORADO					1	1		1			1
IDAHO	6		6			42			10	8	
NEW MEXICO	13	1	5		11	10	8	8	4	8	1
UTAH			48	18	13		4	2	66	6	
TOTAL	48	1	89	19	42	56	20	15	105	32	3
REGION IX - PACIFIC											
CALIFORNIA	33		33	7	43	10	37		19	24	8
OREGON	23		13		6		7		22	5	1
WASHINGTON					23	12	10	3		7	5
TOTAL	56		46	7	72	22	54	3	41	36	14

# APPENDIX A-11

## NUCLEAR ENGINEERING DEGREES AS A PERCENTAGE OF ALL ENGINEERING DEGREES BY DEGREE LEVEL, 1967-1981

Year Ending June 30	Bachelor's			Master's			Doctoral		
	All Engineering	Nuclear Engineering	Percent Nuclear/ All Eng.	All Engineering	Nuclear Engineering	Percent Nuclear/ All Eng.	All Engineering	Nuclear Engineering	Percent Nuclear/ All Eng.
1967	36,186	167	0.46	13,887	326	2.35	2,614	137	5.24
1968	38,002	251	0.66	15,152	320	2.11	2,933	148	5.05
1969	39,972	315	0.79	14,980	385	2.57	3,345	154	4.60
1970	42,966	424	0.99	15,548	413	2.66	3,620	182	5.03
1971	43,167	461	1.07	16,383	414	2.53	3,640	171	4.70
1972	44,190	561	1.27	17,356	436	2.51	3,774	151	4.00
1973	43,429	701	1.61	17,152	453	2.64	3,587	128	3.57
1974	41,407	661	1.60	15,885	465	2.93	3,362	128	3.81
1975	38,210	565	1.48	15,549	468	3.01	3,138	101	3.22
1976	37,970	683	1.80	16,506	468	2.84	2,977	145	4.87
1977	40,094	795	1.98	16,517	554	3.35	2,814	121	4.30
1978	46,091	824	1.79	16,182	487	3.00	2,573	110	4.28
1979	52,598	794	1.51	16,032	463	2.89	2,815	117	4.16
1980	58,742	695	1.18	17,243	365	2.12	2,751	116	4.22
1981	62,935	642	1.02	17,914	315	1.76	2,841	131	4.61

Source: Data for all engineering degrees supplied by Engineering Manpower Commission, New York; for nuclear engineering degrees, U.S. Department of Energy.



APPENDIX B-1

ADDRESSES OF INSTITUTIONS IN SURVEY UNIVERSE WITH ACTIVE PROGRAMS  
IN NUCLEAR ENGINEERING, 1981

Tuskegee Institute  
Mechanical Engineering  
Tuskegee, Alabama 36088

Arizona State University  
Mechanical & Energy Systems  
Nuclear Science  
Tempe, Arizona 85281

University of Arizona  
Nuclear & Energy Engineering  
Tucson, Arizona 85721

University of California, Berkeley  
Department of Nuclear Engineering  
Berkeley, California 94720

University of California, Los Angeles  
Department of Chemical, Nuclear,  
& Thermal Engineering  
Los Angeles, California 90024

California State University  
Mechanical & Chemical Engineering  
Northridge, California 91330

University of California, Santa Barbara  
Department of Chemical & Nuclear  
Engineering  
Santa Barbara, California 93106

Stanford University  
Department of Mechanical Engineering  
Stanford, California 94305

University of Colorado\*  
Physics Department  
Boulder, Colorado 80309

Colorado State University  
Department of Mechanical Engineering  
Fort Collins, Colorado 80523

Catholic University of America  
Department of Mechanical Engineering  
Washington, D.C. 20064

Howard University  
Mechanical Engineering/Nuclear  
Washington, D.C. 20059

University of Florida  
Department of Nuclear Engineering  
Sciences  
Gainesville, Florida 32611

Georgia Institute of Technology  
School of Nuclear Engineering  
& Health Physics  
Atlanta, Georgia 30332

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\*New to survey in 1981.

APPENDIX B-1 (Continued)

University of Idaho  
Nuclear, Mechanical, and  
Chemical Engineering  
Moscow, Idaho 83843

Idaho State University  
School of Engineering  
Pocatello, Idaho 83209

Northwestern University  
Mechanical and Nuclear Engineering  
Evanston, Illinois 61801

University of Illinois  
Department of Nuclear Engineering  
Urbana, Illinois 61801

University of Notre Dame  
Department of Aerospace &  
Mechanical Engineering  
Notre Dame, Indiana 46556

Purdue University  
Department of Nuclear Engineering  
West Lafayette, Indiana 47906

Iowa State University  
Department of Nuclear Engineering  
Ames, Iowa 50011

Kansas State University  
Department of Nuclear Engineering  
Manhattan, Kansas 66506

University of Kentucky  
Department of Mechanical Engineering  
Lexington, Kentucky 40506

Louisiana State University  
Nuclear Science Center  
Baton Rouge, Louisiana 70803

University of Maine  
Department of Physics  
Orono, Maine 04469

U.S. Naval Academy\*  
Naval Systems Engineering  
Annapolis, Maryland 21402

University of Maryland  
Department of Nuclear Engineering  
College Park, Maryland 20742

Massachusetts Institute of  
Technology  
Department of Nuclear Engineering  
Cambridge, Massachusetts 02139

University of Lowell  
Department of Nuclear Engineering  
Lowell, Massachusetts 01854

Worcester Polytechnic Institute  
Department of Mechanical Engineering  
Worcester, Massachusetts 01609

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\*New to survey in 1981.

APPENDIX B-1 (Continued)

University of Michigan  
Department of Nuclear Engineering  
Ann Arbor, Michigan 48109

Michigan Technical University  
Department of Physics  
Houghton, Michigan 49331

Mississippi State University  
Department of Mechanical  
& Nuclear Engineering  
Mississippi State, Mississippi 39762

University of Missouri, Columbia  
Department of Nuclear Engineering  
Columbia, Missouri 65211

University of Missouri, Rolla  
Department of Nuclear Engineering  
Rolla, Missouri 65401

University of Nebraska\*  
School of Engineering  
Lincoln, Nebraska 68588

Stevens Institute of Technology\*  
Physics Department  
Hoboken, New Jersey 07030

New Jersey Institute of Technology  
Department of Physics &  
Engineering Science  
Newark, New Jersey 07102

University of New Mexico  
Departments of Mechanical, Chemical,  
& Nuclear Engineering  
Albuquerque, New Mexico 87131

Polytechnic Institute of New York  
Department of Nuclear Engineering  
Brooklyn, New York 11201

State University of New York, Buffalo  
Department of Engineering  
& Applied Sciences  
Buffalo, New York 14214

Cornell University  
Department of Nuclear Science  
& Engineering  
Ithaca, New York 14853

Columbia University  
Department of Applied Physics  
& Nuclear Engineering  
New York, New York 10027

State University of New York,  
Maritime College  
Department of Science, Engineering  
New York, New York 10465

Manhattan College\*  
Mechanical Engineering Department  
New York, New York 10471

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\*New to survey in 1981.

APPENDIX B-1 (Continued)

Clarkson College of Technology  
School of Engineering  
Potsdam, New York 13676

Rensselaer Polytechnic Institute  
Department of Nuclear Engineering  
Troy, New York 12181

North Carolina State University  
Department of Nuclear Engineering  
Raleigh, North Carolina 27650

University of Cincinnati  
Department of Chemical &  
Nuclear Engineering  
Cincinnati, Ohio 45221

Case Western Reserve University  
Department of Electrical Engineering  
& Applied Physics  
Cleveland, Ohio 44106

Ohio State University  
Department of Nuclear Engineering  
Columbus, Ohio 43210

Air Force Institute of Technology  
Physics Department (School of Engineering)  
Dayton, Ohio 45433

Youngstown State University\*  
Chemical & Metallurgical Engineering  
Youngstown, Ohio 44555

University of Oklahoma  
Department of Nuclear Engineering  
Norman, Oklahoma 73019

Oregon State University  
Department of Nuclear Engineering  
Corvallis, Oregon 97331

Carnegie-Mellon University  
Department of Nuclear Science  
& Engineering  
Pittsburgh, Pennsylvania 15213

Pennsylvania State University  
Department of Nuclear Engineering  
University Park, Pennsylvania 16802

Tennessee Technological University  
Department of Engineering Science  
& Mechanics  
Cookeville, Tennessee 38501

University of Tennessee  
Department of Nuclear Engineering  
Knoxville, Tennessee 37916

University of Texas, Austin  
Department of Mechanical Engineering  
Austin, Texas 78712

Texas A&M University  
Department of Nuclear Engineering  
College Station, Texas 77843

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\*New to survey in 1981.

APPENDIX B-1 (Continued)

Utah State University  
Department of Mechanical Engineering  
Logan, Utah 84231

Brigham Young University  
Department of Chemical Engineering  
Provo, Utah 84602

University of Utah  
Department of Mechanical Engineering  
Salt Lake City, Utah 84112

Virginia Polytechnic Institute  
Nuclear Engineering Department  
Blacksburg, Virginia 24061

University of Virginia  
Department of Nuclear Engineering  
& Engineering Physics  
Charlottesville, Virginia 22901

University of Washington  
Department of Nuclear Engineering  
Seattle, Washington 98195

University of Wisconsin  
Department of Nuclear Engineering  
Madison, Wisconsin 53706

APPENDIX B-2

ADDRESSES OF INSTITUTIONS IN SURVEY UNIVERSE WITH INACTIVE PROGRAMS  
IN NUCLEAR ENGINEERING, 1981

Inactive	Discontinued
South Dakota State University Department of Mechanical Engineering Brookings, South Dakota 57007	University of Rhode Island Department of Chemical Engineering Kingston, Rhode Island 02881
Memphis State University Department of Mechanical Engineering Memphis, Tennessee 38152	
University of Pennsylvania Mechanical Engineering Department Philadelphia, Pennsylvania 19104	
University of Puerto Rico Mechanical & Nuclear Engineering Mayagüez, Puerto Rico 00708	

APPENDIX C  
SURVEY MATERIALS



Department of Energy  
Washington, D.C. 20585

September 18, 1981

Dear Professor:

The enclosed form is designed to obtain data concerning the potential supply of nuclear engineers. This survey is carried out by the Department of Energy (DOE) in partial fulfillment of its requirement "to assure an adequate supply of manpower for...energy research and development programs...by...the collection, analysis, and dissemination of necessary manpower supply and demand data...", which is mandated in P.L. 93-438, the Energy Reorganization Act of 1974, as amended.

The survey is sent to all colleges with programs in nuclear engineering or in other engineering disciplines with nuclear option courses which would prepare a graduate of the program to perform as a nuclear engineer.

You are not required to respond to this survey, but we hope that you will cooperate. We wish to make the results as comprehensive, accurate, and timely as possible. The information obtained is published and widely distributed. It is used by all levels of government and industry for recruitment purposes, and by students and educational institutions for identifying the availability of special curriculums. None of the information is used in any way that could be construed as anything but beneficial to the institutions which participate. Because the form does not request any individually identifiable data on students, DOE does not consider the information confidential.

Complete instructions and definitions needed in filling out the form are included on the form itself. Please complete it and return it to the following address at your earliest convenience:

Duven L. Shirley/Joanna R. Little  
Oak Ridge Associated Universities  
P.O. Box 117  
Oak Ridge, Tennessee 37830 (615) 576-3409 or 576-3317

A stamped, self-addressed envelope is enclosed for your convenience. Thank you for your cooperation.

Sincerely,

*Norman Seltzer*

Norman Seltzer  
Chief, Manpower Assessment Program

Enclosures

# APPENDIX C (Continued)

DOE Form IR-616 <b>IMPORTANT:</b> Before completing this form, please see instructions and definitions on the back.		U. S. Department of Energy <b>NUCLEAR ENGINEERING ENROLLMENT AND DEGREE SURVEY: 1981</b>		FORM APPROVED OMB NO. 1901-0015 Exp. June 1983	
Name of Institution _____		6 7 City _____		28 State _____ 31 32 Zip Code 36 _____	
37 Department(s) Reporting _____ 61 62 _____ 67 _____ 79 80 _____		1 _____ 6 7 _____		Name of Official Supplying Date _____ 36 _____	
37 Title of Official Supplying Data _____ 61 62 Code 69 70 _____		Area Telephone _____ 76 79 _____ 80 _____		_____ A2 _____	

SCHOOL NUMBER (Leave Blank)	NUCLEAR ENGINEERING CURRICULUM OR OPTION	CODE	ENROLLMENTS FALL 1981																DEGREES GRANTED July 1980-June 1981						CARD			
			UNDERGRADUATES								MASTER CANDIDATES				DOCTORATE CANDIDATES				BACHELOR			80						
			3rd Year				4th Year				Full Time		Part Time		Full Time		Part Time		39	41	42		44	45		47		
			Full Time	Part Time	Full Time	Part Time	Full Time	Part Time	Full Time	Part Time	Full Time	Part Time	Full Time	Part Time														
6		7 8	9	11	12	14	15	17	18	20	27	29	30	32	33	35	36	38										
	Nuclear	10																										11
	Chemical, with nuclear option	20																										11
	Engineering Science, with nuclear option	90																										11
	Electrical, with nuclear option	40																										11
	Mechanical, with nuclear option	60																										11
	Other (Specify, e.g., Industrial, Civil)	70																										11
<b>TOTAL</b>																												
Please break out the following from the totals reported above			CODE	FT	PT	FT	PT				FT	PT	FT	PT					B	M	D							
	Foreign nationals	Male	80																								11	
		Female	8A																									
	White U.S. citizens, not of Hispanic origin	Male	81																								11	
		Female	8B																									
	Black U.S. citizens, not of Hispanic origin	Male	82																								11	
		Female	8C																									
	Hispanic U.S. citizens	Male	83																								11	
		Female	8D																									
	Asian or Pacific Islander U.S. citizens	Male	84																								11	
		Female	8E																									
	American Indian or Alaskan native U.S. citizens	Male	85																								11	
		Female	8F																									

This survey is authorized by Public Law 93-438, as amended. While you are not required to respond, your cooperation is needed to make the results comprehensive, accurate, and timely. Information will NOT be held confidential.

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Date

Remarks



## APPENDIX C (Continued)

Note: Information provided through this survey will not be held confidential.

INSTRUCTIONS AND DEFINITIONS FOR COMPLETING DOE FORM IR-616

**PURPOSE:** This voluntary survey is conducted for the Department of Energy (DOE) in partial fulfillment of their obligation to "assure an adequate supply of manpower for the accomplishment of energy research and development programs...by...the collection, analysis and dissemination of necessary manpower supply and demand data," as mandated in P.L. 93-438, the Energy Reorganization Act of 1974, as amended. It is used to determine by degree level, the yearly supply and anticipated supply of those trained in nuclear engineering or in another engineering discipline with a nuclear option, except in the areas of radiation protection.

**WHO SHOULD COMPLETE AND SUBMIT FORMS:** All departments with programs in nuclear engineering or in other engineering disciplines with a nuclear option sufficient to equip its graduates to function as nuclear engineers. Exception: any engineering curriculum with a health physics or radiation protection option should be reported on DOE Form IR-617, which is available from the address or telephone number given below. Each major program should be reported on the appropriate line or on separate lines in the write-in space. Very small specialties should be combined.

**WHEN AND WHERE TO SUBMIT FORMS:** Forms should be submitted within two weeks of receipt, or the latest, by mid-November, depending upon your institution's enrollment schedule. Send completed forms to:

Duven L. Shirley/Joanna R. Little  
Oak Ridge Associated Universities  
P.O. Box 117  
Oak Ridge, Tennessee 37830  
(615) 576-3409 or 576-3317

**SPECIAL INSTRUCTIONS:** Report only students enrolled in a degree program. Count Co-op students (see definition below) as full-time students. If exact figures are not available, give your best estimate and indicate by an "E" after each number that is estimated.

**DEFINITIONS:**

**Junior:** A student who is more than one and less than two academic years short of a Bachelor's degree or equivalent.

**Senior:** A student who is one year or less short of a Bachelor's degree or equivalent.

**Master's Candidate:** A student enrolled in a program leading to any degree below the Ph.D. and above the BS or BA (i.e., a fifth year student in an integrated program leading directly to the MS or a candidate for a first professional degree).

**CO-OP Student:** A student who alternates sessions of schooling with sessions of employment in a position related to the academic specialty.

**Foreign National:** Any student who is a citizen of another country and who has not applied for U.S. citizenship.

**White not of Hispanic origin:** A person having origin in any of the original peoples of Europe, North Africa, or the Middle East.

**Black not of Hispanic origin:** A person having origin in any of the black racial groups of Africa.

**Hispanic:** A person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin regardless of race.

**Asian or Pacific Islander:** A person having origin in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands.

**American Indian or Alaskan Native:** A person having origin in any of the original peoples of North America and who maintains cultural identification through tribal affiliation or community recognition.

# APPENDIX C (Continued)

DOE Form IR-616-A

## U. S. Department of Energy NUCLEAR ENGINEERING ENROLLMENT AND DEGREE SURVEY-SUPPLEMENT

FORM APPROVED  
OMB NO. 1901-0015  
Exp. June 1983

Reporting Institution \_\_\_\_\_

Date \_\_\_\_\_

Please indicate placement or plans of degree recipients for July 1980-June 1981.

PLACEMENT OR PLANS AFTER GRADUATION	BACHELORS		MASTERS		DOCTORATES	
	Total Graduates	Number of Foreign Nationals in Total	Total Graduates	Number of Foreign Nationals in Total	Total Graduates	Number of Foreign Nationals in Total
Further study						
U.S. academic employment (show students employed part time under further study)						
Federal government employment						
Government-owned, contrac- tor-operated installations employment (GOCO's)						
State and local government employment						
Industrial employment within U.S.						
Employment with foreign employer						
U.S. military service						
Other (specify)						
Still seeking employment						
Unknown						
TOTAL (should agree with totals of degrees reported on front sheet)						