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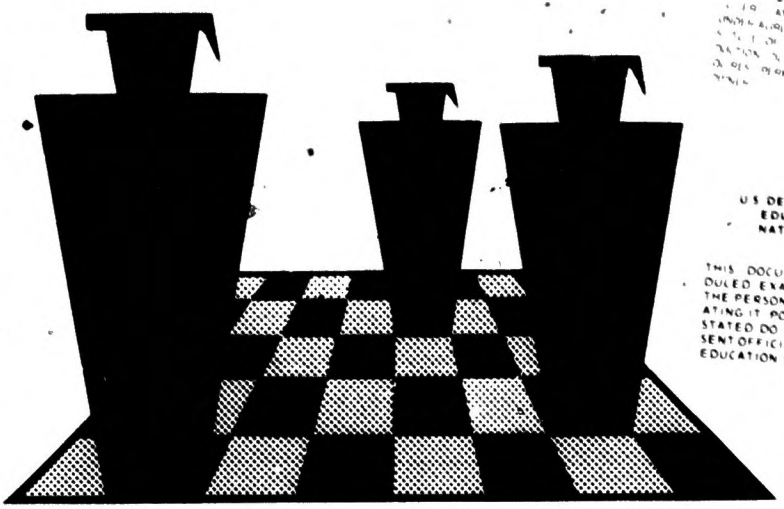
ABSTRACT

Newly graduating engineers and technicians of the class of 1974 enjoyed the best job prospects since 1970, according to data compiled by the Engineering Manpower Commission from a survey of the nation's engineering and technical schools. The pattern of persons seeking employment and those seeking further study seem to have been changing gradually in the last three or four years. At both the bachelor's and master's level in engineering, and the two-year associate level in technology, fewer graduates were continuing their education. As usual, the Ph.D. in engineering and the bachelor in technology degree represent terminal points for practically all graduates, with only a few percent pursuing further full-time study. Among master's and doctor's degree graduates the percentage with other plans remained at fairly high levels comparable to 1973. The strong demand was reflected in higher salaries offered to new graduates. Women graduates averaged slightly higher salary offers than men. No specialties appear to have had significant placement problems in 1974, although architectural engineering, computer science, and engineering sciences were somewhat weaker than other areas. (Author/KE)

PROSPECTS OF ENGINEERING AND TECHNOLOGY GRADUATES



1974-1975

ENGINEERING MANPOWER COMMISSION
of
ENGINEERS JOINT COUNCIL

345 East 47th Street, New York, New York 10017

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ENGINEERS JOINT COUNCIL

ENGINEERS JOINT COUNCIL (founded in 1941 and incorporated in 1958) is an organization of engineering societies whose general objective is to advance the art and science of engineering in the public interest.

In furtherance of this general objective the Council shall:

(a) Provide for regular and orderly communications among its member societies.

(b) Act as an advisory and coordinating agency for member society activities, as mutually agreed.

(c) Organize and conduct forums for the consideration of problems of expressed concern to member societies.

(d) Identify needs and opportunities for service in the engineering community and inform the concerned engineering institutions.

(e) Recommend appropriate programs of studies and research to engineering institutions and especially to member societies.

(f) Undertake, in accordance with policies mutually agreed to, specific activities or projects that the member societies acting individually could not accomplish as well.

(g) Represent the member societies when they deem such joint representation desirable.

THE ENGINEERING MANPOWER COMMISSION OF ENGINEERS JOINT COUNCIL

The Engineering Manpower Commission was organized in 1951 as part of Engineers Joint Council, to serve as a focus for national technological manpower problems

The Commission's program is carried out through the collection, analysis, and publication of significant data on engineering manpower, as well as the development of programs and policies designed to acquaint the public with the importance of engineering to the national welfare.

The Engineering Manpower Commission is charged with the following responsibility:

"To engage in studies and analyses of the supply, demand, and utilization of engineering and technical manpower; to make recommendations, conduct programs, and develop reports concerning these aspects of engineering and technical manpower; and to carry on such other programs in the field of manpower as may be authorized by the Board of Directors of EJC."

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ACKNOWLEDGEMENTS

The surveys on which this report is based were conducted by the Engineering Manpower Commission staff under the overall direction of John D. Alden, Director of Manpower Activities, Engineers Joint Council. Adrianne Marshal screened and tabulated most of the data. The data tables were typed by Christine F. Vachula and Cira Focarino of the EMC staff.

We owe particular thanks to all of the Deans, Registrars, and Placement Directors who responded to our surveys. Their cooperation in providing the basic source data is essential to the production of these annual placement reports on engineering and technology graduates.

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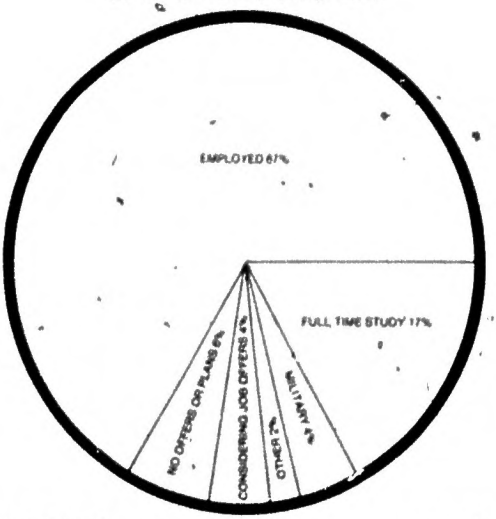

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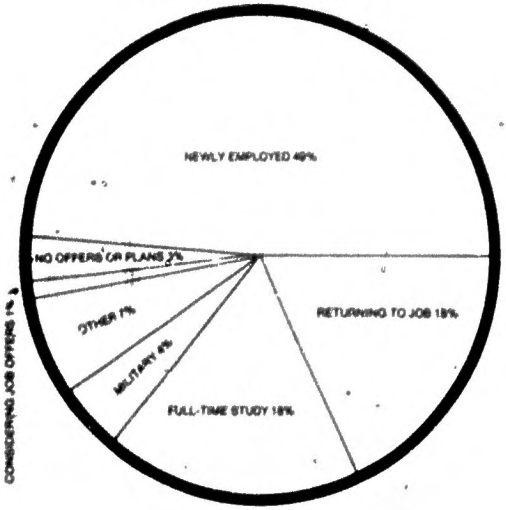


DOCTOR'S DEGREE

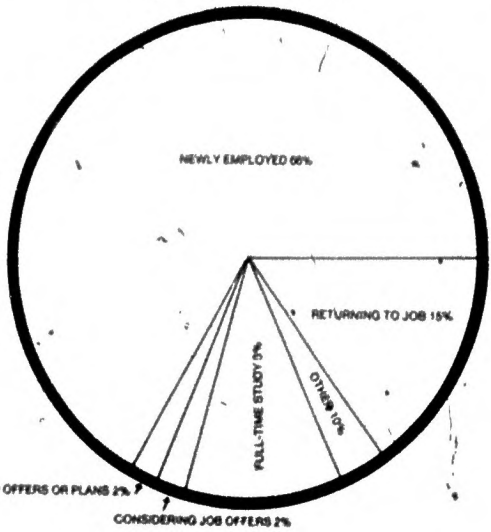


FIGURE 1

THE PLACEMENT STATUS OF ENGINEERING GRADUATES AND TECHNOLOGY GRADUATES, 1974

THE OVERALL PICTURE

Newly-graduating engineers and technicians of the class of 1974 enjoyed the best job prospects since 1970, according to data compiled by the Engineering Manpower Commission from a survey of the nation's engineering and technical schools. At practically all degree levels more graduates were employed and fewer were without job offers or other plans than in recent years. There was a definite tendency toward accepting employment and away from continuing full-time study, possibly because students found job offers and salaries particularly attractive this year. The percentage going into military service fell to its lowest level since the EMC placement surveys were started in 1958, while the proportion with other specific plans did not change appreciably compared to the last two years. The numbers still considering job offers were generally lower than last year, which is another indication of a strong employment market. Figures 1 and 2 show the placement status for 1974 graduates at five different degree levels.

The main opportunity for tradeoff each year is between employment and further study, and here the pattern seems to have been changing gradually in the last three or four years. At both the bachelor's and master's level in engineering, and the two-year associate level in technology, only 17 or 18 percent of the graduates were continuing their education, compared to peaks of 25 to 30 percent in past years. As usual, the PhD in engineering and the bachelor in technology degree represent terminal points for practically all graduates, with only a few percent pursuing further full-time study.

Among master's and doctor's degree graduates the percentage with other plans remained at fairly high levels comparable to 1973. Some of this is due to the large number of foreign students returning to their home countries. Under current immigration procedures it is difficult for these graduates to remain in the U.S. even though engineering jobs may be available. The numbers of graduates not seeking employment, which were specifically identified for the first time in this year's placement survey, proved to be one percent or less in all cases.

PLACEMENT STATUS OF TECHNOLOGY GRADUATES, 1974

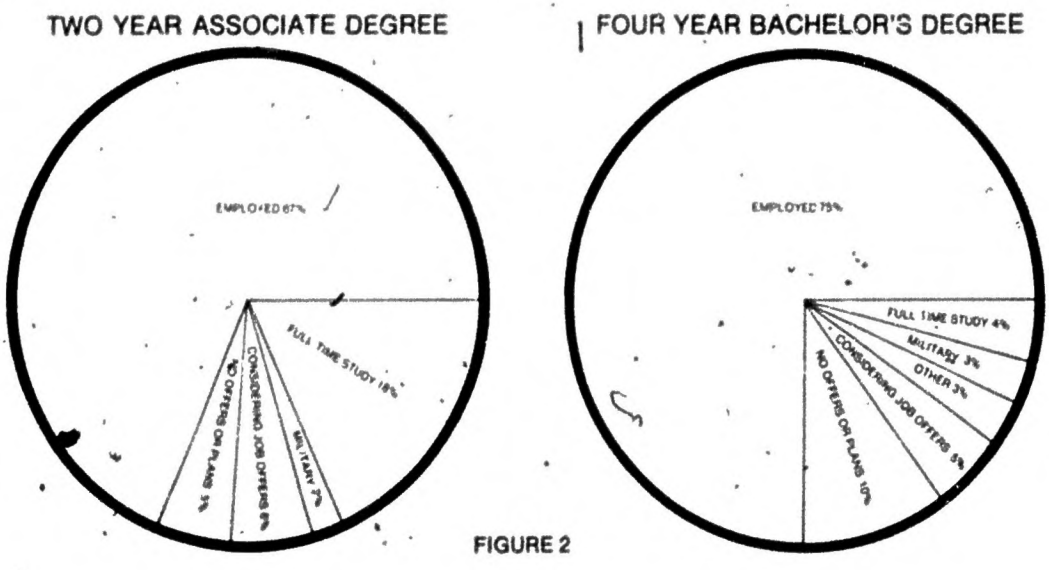
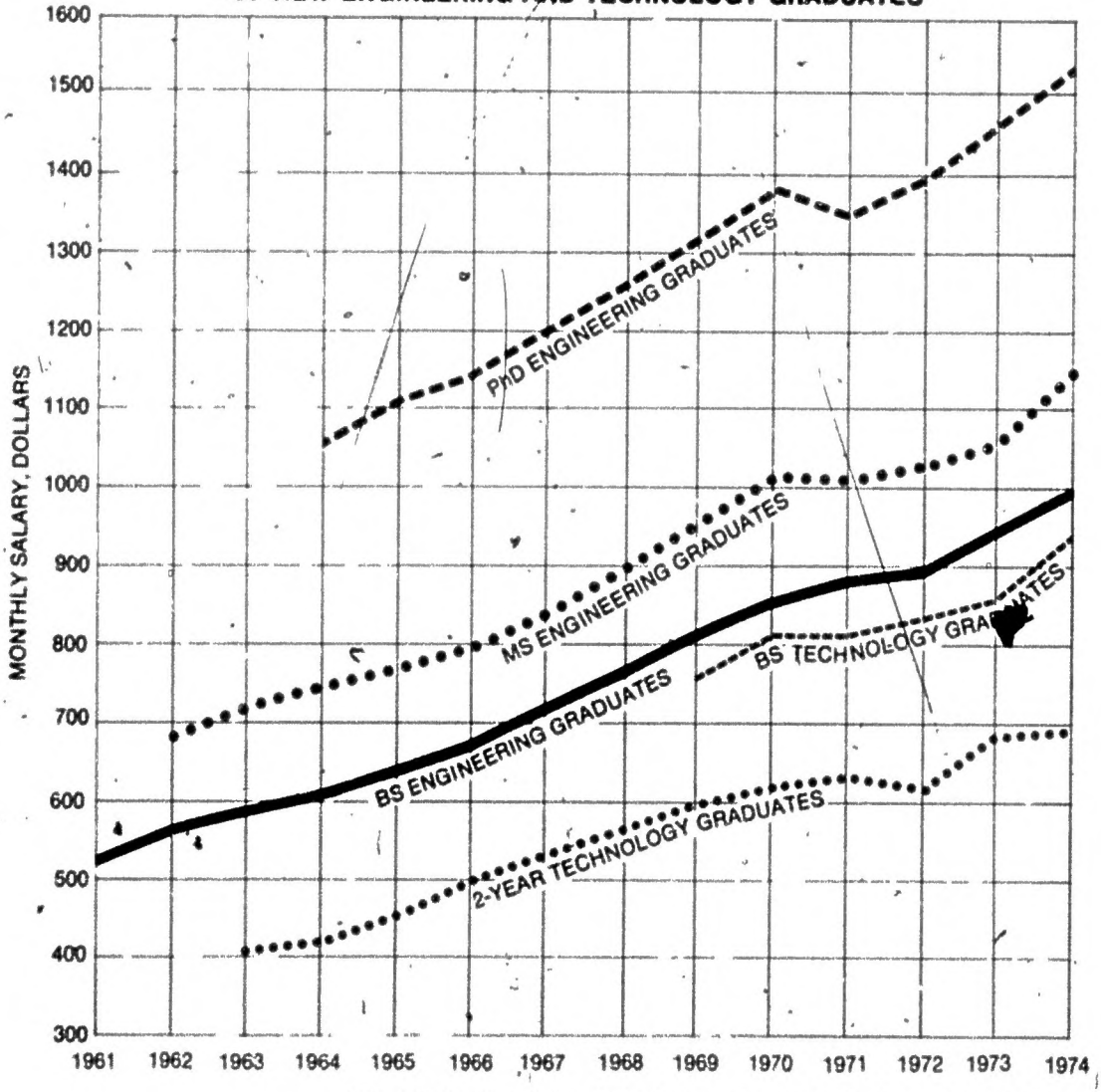


FIGURE 2

The strong demand was reflected in higher salaries offered to new engineering and technology graduates at all degree levels, as indicated by Figure 3. Average dollar offers were typically up by six or seven percent over last year, although a few specialties registered higher or lower gains. These increases were almost all greater than those of the last two years, even at the PhD level, where jobs were expected to be hardest to find. Engineers again led practically all other occupations in salaries offered to new graduates as reported by the College Placement Council. Chemical engineering was highest at the bachelor's level at $1042 per month and at the master's level at $1172, but electrical engineering barely nosed it out on the doctor's degree list with an average of $1551.

As last year, women graduates averaged slightly higher salary offers than men, $1006 compared to $997 at the Bs degree level. Minority graduates were reported to be in very strong demand, but separate statistics are not available for these groups.

AVERAGE MONTHLY STARTING SALARIES OF NEW ENGINEERING AND TECHNOLOGY GRADUATES



Source. Engineering salaries adapted from annual surveys by The College Placement Council, Inc. Technology salaries from annual surveys by the Engineering Manpower Commission.

FIGURE 3

In the long run the relatively poor employment situation of 1970 and 1971 is now seen to have produced only a minor reduction in the hiring of new engineering graduates and a temporary slowdown in the steady rise of starting salaries. As smaller graduating classes leave college in the next few years, it is probable that the trend will be even more strongly upward unless demand should take an unexpectedly sharp drop due to depressed economic conditions.

No specialties appear to have had signtficant placement problems in 1974, although architectural engineering, computer science, and engineering sciences were somewhat weaker than other areas. The strongest continuing demand is expected to be for bachelor's degree graduates with a sound education in one of the basic branches of engineering. Graduates whose field is too specialized or "oversold" are likely to find themselves sought-after one year and in surplus supply the next, while those whose education is too general are likely to find their choice of jobs limited because of the specific preferences of most employers.

BACHELOR'S DEGREE GRADUATES IN ENGINEERING

The strengthening of industrial recruiting that began in 1972 continued strongly in 1974 and resulted in another increase in the percentage of new graduates employed. This occurred mainly at the expense of decreases in the numbers entering graduate school even though military service claimed the smallest percentage of engineering graduates since the EMC surveys were started in 1958. The number without job offers or other definite plans was about the same as last year. Table 1 and Figure 4 show how the placement status of bachelor's degree engineering graduates has varied from 1958 to date.

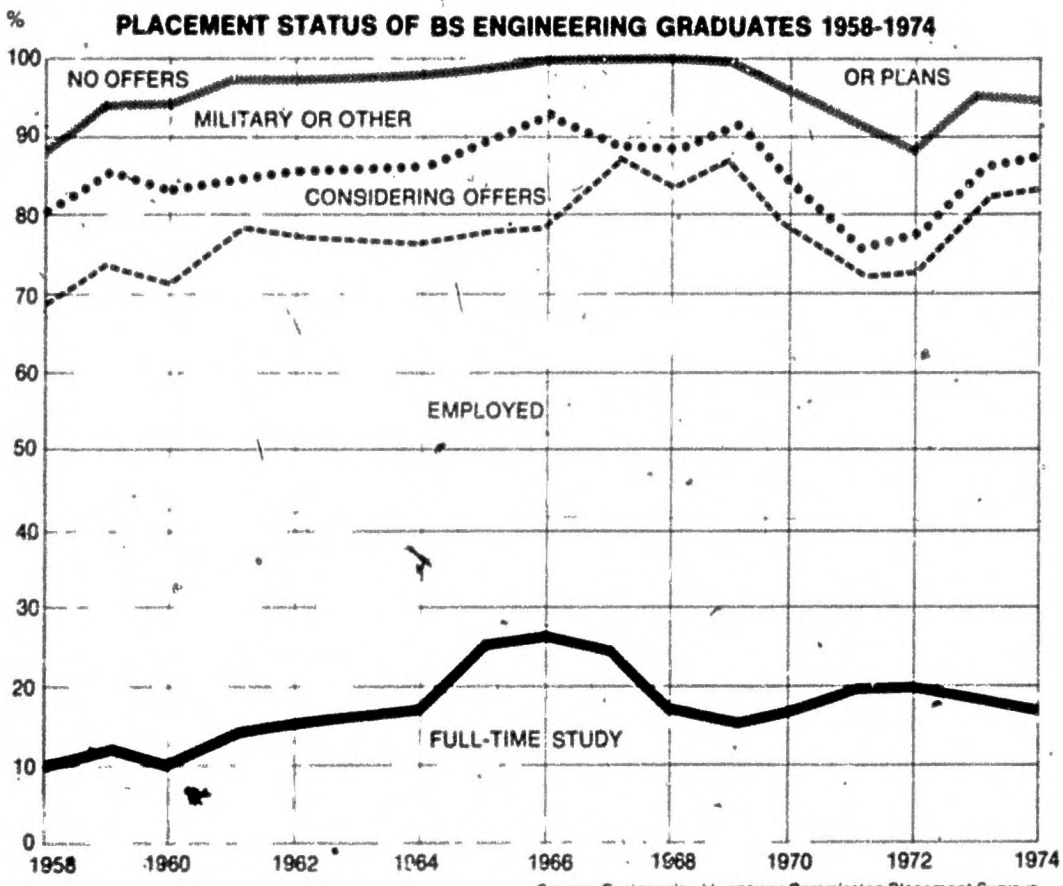


FIGURE 4

In view of the favorable employment climate, it appears that the six percent of graduates without job offers or other plans is typical of what can be expected in these times. The reduction in this category compared to 1971 and 1972 probably reflects a general settling-down that has been observed on college campuses in other contexts. In retrospect, the negligible percentages for 1966 through 1969 can probably be attributed to pressures resulting from the war in Vietnam and the draft.

The slight but continued drop in the percentage entering graduate study, from 20 percent in 1971 to 17 percent this year, is evidence that advanced study has lost much of its popularity among new engineering graduates. The sharp growth rate from 1960 to 1966 as shown in Figure 5 was at the time thought to indicate that in a few years most engineering students would proceed directly to an advanced degree. Now it is apparent that the trend was artificially stimulated in the late 1960's by pressures of the military draft. There are indications that more and more students are seeking some work experience before returning to school for advanced study. Rising educational costs, general inflationary pressures, and reduced scholarship aid are other probable factors.

TABLE 1

Placement Status of Bachelor's Degree Engineering Graduates

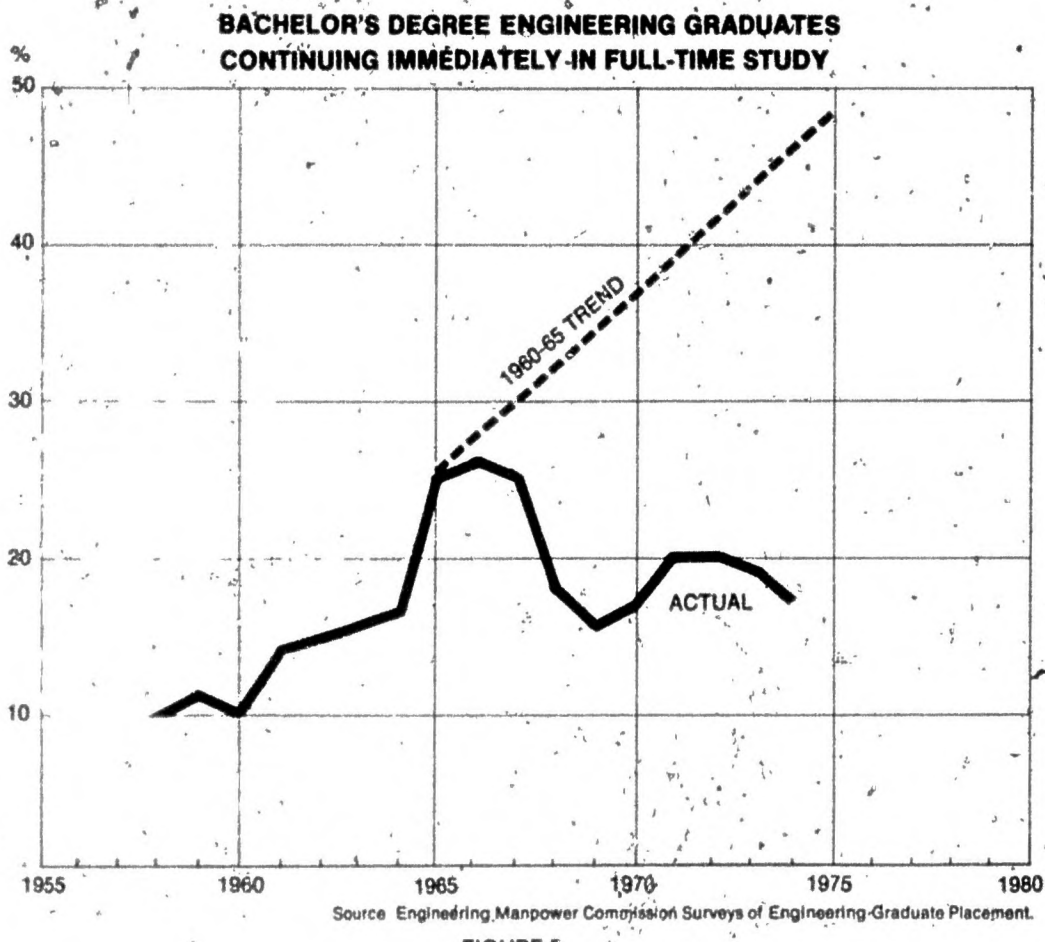
1974 Compared with Previous Years

Placement Status	1958	1959	1960	1961	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
Employed**	59%	63%	62%	65%	59%	60%	54%	64%	68%	71%	64%	52%	54%	62%	67%
Entering Graduate Studies**	10	11	10	14	17	25	26	25	18	16	17	20	20	19	17
Entering Military Service	9	8	8	11	9	8	7	9	11	9	11	14	9	5	4
Other Specific Plans	--	1	2	2	3	1	1	2	1	*	2	2	2	3	2
Graduates Committed (Total of Above)	79	83	82	92	88	87	85	98	96	96	92	88	84	88	90
Considering Job Offers	11	11	11	5	10	12	14	2	3	3	4	3	5	6	4
No Offers or Plans	10	6	7	3	2	1	*	*	*	*	4	9	11	5	6
Total with Status Known	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

*Less than 1%

**For 1965 and later years, those employed and entering full-time graduates studies sponsored by employer are included in both categories. Totals for these years are therefore less than the sum of individual categories.

NOTE: Percentages may not add to totals because of rounding.



Source Engineering Manpower Commission Surveys of Engineering Graduate Placement.

FIGURE 5

The differences between ECPD-accredited and other schools are shown in Figure 6 and Table 2. As in earlier surveys, the graduates of ECPD schools proved twice as likely to continue their education, but also more likely to be without job offers or other plans. However, the number of graduates from non-ECPD schools is so small a proportion of the total that these differences are of little significance in the overall manpower supply picture.

TABLE 2

Placement Status of Bachelor's Degree Engineering Graduates - 1974

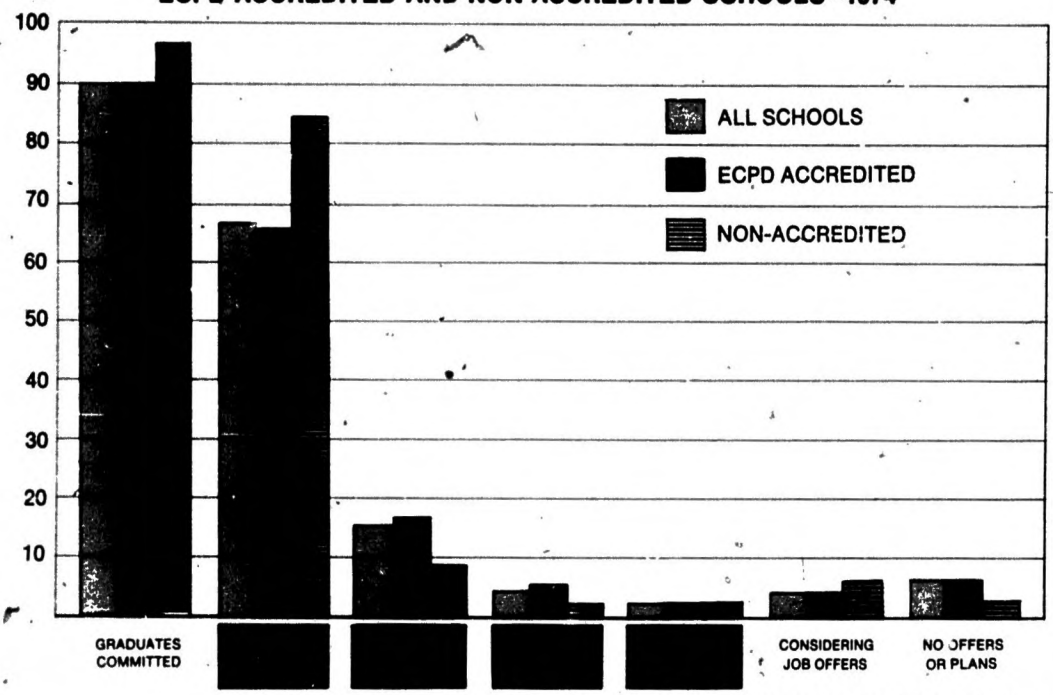
ECPD Accredited and Non-Accredited Schools

Placement Status	All Schools		ECPD Accredited Schools		Non-Accredited Schools	
	No.	%	No.	%	No.	%
Employed	10665	67%	10053	66%	612	84%
Employed and Entering Full-Time Graduate Study	50	*	47	*	3	*
Entering Graduate Study	2639	16	2579	17	60	8
Entering Military Service	710	4	698	5	12	2
Other Specific Plans	380	2	364	2	16	2
Graduates Committed (Total of Above)	14444	90	13741	90	703	97
Considering Job Offers	590	4	584	4	6	*
No Offers or Plans - Seeking Employment	909	6	894	6	15	2
Not Seeking Employment	79	*	78	*	1	*
Total with Status Known	16022	100	15297	100	725	100
No Information	2011	-	1984	-	27	-
Total Reported	18033	-	17281	-	752	-

*Less than 1%

NOTE: Percentages may not add to totals because of rounding. ECPD schools are those having at least one curriculum in engineering technology accredited by ECPD. However, some curricula may not be accredited.

PLACEMENT STATUS OF BACHELOR'S DEGREE ENGINEERING GRADUATES
ECPD ACCREDITED AND NON-ACCREDITED SCHOOLS--1974



*Those employed and entering graduate studies sponsored by employer are included in both categories.

FIGURE 6

TABLE 3

Placement Status of Engineering Graduates by Curriculum - 1974

Bachelor's Degree Programs

Placement Status	Aero.	Agr.	Arch.	Ceram.	Chem.	Civil	Comp. Sci.	Elec.	Eng. Gen.
Employed**	51%	62%	47%	74%	69%	69%	61%	66%	52%
Entering Full-Time Graduate Study**	20	21	21	20	18	14	16	18	28
Entering Military Service	16	3	2	1	2	4	4	5	5
Other Specific Plans	1	5	2	1	4	2	2	2	6
Graduates Committed (Total of Above)	89	89	72	96	93	89	82	90	90
Considering Job Offers	5	5	12	2	3	5	6	4	5
No Offers or Plans-Seeking Employment	6	4	16	0	3	6	11	6	4
Not Seeking Employment	1	2	0	1	*	*	*	*	*

Placement Status	Eng. Sci. Phys/Mech.	Indus.	Mech.	Metal	Min. & Geol.	Nuc.	Petro.	All Others	Total
Employed**	51%	68%	73%	68%	72%	54%	77%	57%	67%
Entering Full-Time Graduate Study**	28	17	12	17	12	33	12	27	17
Entering Military Service	5	3	5	3	4	3	*	3	4
Other Specific Plans	1	1	3	2	2	4	9	1	2
Graduates Committed (Total of Above)	85	89	93	90	90	94	99	87	90
Considering Job Offers	4	5	2	3	*	6	0	3	4
No Offers or Plans-Seeking Employment	9	6	4	7	9	0	*	9	6
Not Seeking Employment	1	*	*	0	*	0	0	*	*

*Less than 1%

**Those employed and entering graduate studies sponsored by employer are included in both categories, but are counted only once in totals.

NOTE: Percentages may not add to totals because of rounding.

Table 3 presents the separate placement statistics for the major curricula. It is dangerous to draw conclusions about differences between curricula or changes from year to year, especially where the statistics are based on small numbers of students. However, advanced study was noticeably more popular among graduates of the engineering sciences, general (or unified) engineering, nuclear engineering, and "all other" curricula. On the other hand, students majoring in mining and geological, petroleum, mechanical, and civil engineering were least likely to pursue graduate study.

Because the percentages are small, differences among curricula in the two bottom rows of the table—those still considering job offers and those without offers or other plans—may not be significant. Particularly in the less populous fields, these numbers tend to fluctuate widely from year to year, which leads one to suspect that the changes may be due more to accidental differences in the survey than to fundamentals of the job market. This year's data seem to indicate that architectural engineering and computer science graduates may have had a little more trouble finding jobs than graduates of the other curricula listed. As in previous years, aerospace graduates showed the highest percentage entering military service, probably via AFROTC programs.

The salaries offered to new graduates were up overall by 7.2 percent over the average for 1973. This is substantially higher than the increase measured last year and reflects the high level of employer recruiting reported for this year. Table 4 gives the figures for the major engineering curricula and related fields in comparison with the non-technical average. As usual, engineering led all other curricula in terms of beginning salaries, as reported by the College Placement Council. The percentage increase was substantially higher than last year for all engineering fields, in contrast to a smaller increase in the physics/chemistry/mathematics group and a 3.5 percent increase for non-technical graduates in both years. Salaries for co-op graduates were, as usual, higher than the general average for their curriculum, but the percentage increases tended to be slightly less. The breakdown by sex again showed women holding a slight edge over men in terms of salaries offered. While the difference is not significant, its existence makes engineering unique among college curricula, as in practically all others women graduates' salaries are substantially lower than men's.

TABLE 4

Starting Salaries of 1974 Engineering Graduates

Bachelor's Degree Level

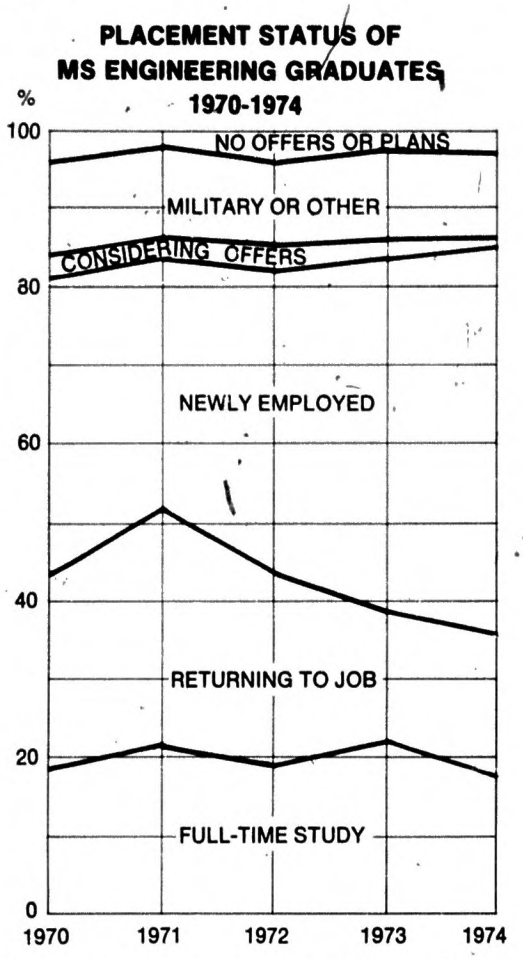
	All Graduates		CO-OP Programs	
Curriculum	Average Dollars Per Month	Percent Increase Over 1973	Average Dollars Per Month	Percent Increase Over 1973
Aeronautical Engineering	960	5.8	1002	5.6
Chemical Engineering	1042	8.5	1069	9.6
Civil Engineering	967	8.7	987	7.3
Electrical Engineering	986	7.1	999	5.7
Industrial Engineering	978	8.5	984	5.2
Mechanical Engineering	1001	8.6	1018	7.5
Metallurgical Engineering	1003	9.0	1002	7.6
Men, All Engineering Curricula	997	7.2	-	-
Women, All Engineering Curricula	1006	7.5	-	-
Engineering Technology	934	8.4	949	9.1
Physics, Chemistry, Mathematics	841	1.0	-	-
Non-Technical (Average)	836	3.5	-	-

Source: The College Placement Council, Inc.

MASTER'S DEGREE ENGINEERING GRADUATES

Master's degree graduates did well again this year, with only three percent being without job offers or other plans while 96 percent had specific commitments at the time of graduation. All fields shown in the breakdown of Table 5 were in good shape, with no real weakness evident. The number employed was up by five percentage points over last year, but the ratio of those entering employment for the first time to those returning to jobs previously held stayed about the same. Changes at this degree level from 1970 to date, as indicated in Table 7 and Figure 7, have been relatively minor. This year there was a slight drop in the percentage continuing full-time study, which is consistent with a similar trend among this year's bachelor's degree graduates.

Salaries at the master's level increased strongly except for the computer science curriculum, and the rates of increase were generally comparable to those at the bachelor's level. As usual, the average salaries offered to engineers were higher than those for any other curriculum except master's of business administration with a technical undergraduate major. Table 6 gives the statistics for 1974.



Source: Engineering Manpower Commission Placement Surveys.

FIGURE 7

TABLE 5

Placement Status of Engineering Graduates by Curriculum - 1974

Master's Degree Programs

Placement	Chem.	Civil	Elec.	Eng.Sci.	Indust.	Mech.	Other	Total
Newly Employed	52%	56%	47%	38%	38%	53%	52%	49%
Returning to Job	7	12	18	37	30	18	12	18
Full-Time Study	27	11	23	15	12	18	20	18
Military Service	3	3	3	6	5	3	3	4
Other Specific Plans	7	12	5	2	11	6	6	7
Graduates Committed (Total of Above)	96	95	97	98	97	98	94	96
Considering Job Offers	*	2	1	*	*	*	1	1
No Offers or Plans-Seeking Employment	4	4	2	2	2	1	5	3
Not Seeking Employment	0	*	*	0	*	0	*	*

*Less than 1%

NOTE: Percentages are based on total with status known and may not add to totals because of rounding. Statistics based on 5249 graduates reported, of whom no information was available on 729.

TABLE 6

Starting Salaries of 1974 Engineering Graduates
Master's Degree Level

Curriculum	Average Dollars Per Month	Percent Increase Over 1973
Chemical Engineering	1172	7.2
Civil Engineering	1102	8.0
Electrical Engineering	1149	7.8
Industrial Engineering	1120	6.5
Mechanical Engineering	1138	6.5
Metallurgy and Related	1131	9.3
All Engineering Fields	1140	7.2
Computer Science	1120	3.3
Business Administration, Management*	1235	5.1

*After technical undergraduate degree.

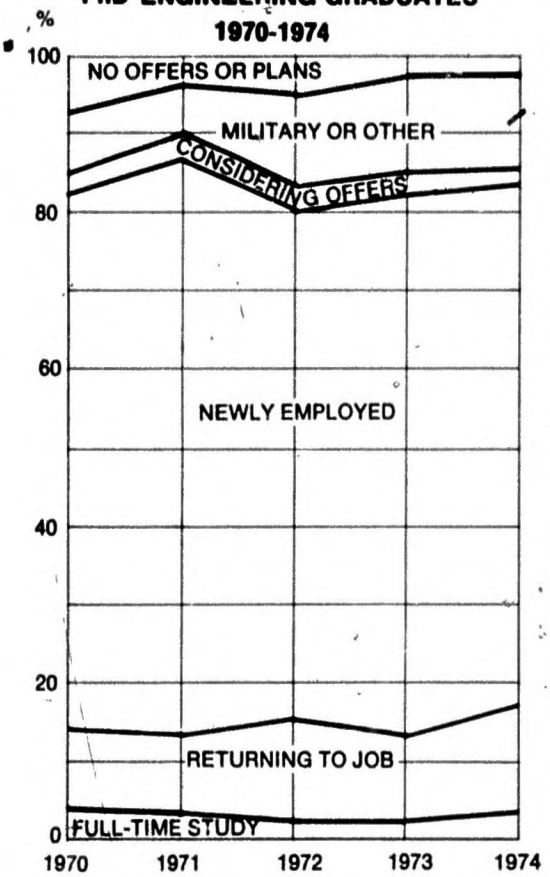
Source: The College Placement Council, Inc.

DOCTOR'S DEGREE ENGINEERING GRADUATES

Despite persistent reports of a surplus of doctoral graduates in other fields, doctor's degree engineers proved to be in strong demand this year, as indicated by Figure 8 and the statistics in Tables 7 and 8. The percentage with other plans has risen noticeably in the last three years, probably because of foreign nationals returning to their own countries. It has been difficult for these graduates to obtain the labor certification necessary to achieve immigrant status since immigration procedures were tightened in 1971. There tends to be more variation among curricula at the doctorate level because of the smaller number of graduates reported, but all fields showed strong placement patterns. Graduates in the engineering sciences curriculum were slightly more likely to be without job offers or other plans. The percentage continuing post-doctoral study continued to be very small in all engineering fields.

One reason for the continued strength in the placement of doctor's degree engineers is the fact that the number produced has not increased in recent years. Advanced degree enrollments in engineering reacted quickly and sharply to the employment recession of 1970-71, and the results are now evident in the form of smaller numbers of graduates. By contrast, other doctorate fields have been much less sensitive to employment conditions and the number of prospective graduates continues to increase. While graduates in the social sciences and humanities are expected to encounter continuing shortages of jobs, it appears unlikely that engineering doctors will have much trouble in finding employment, in part because fewer will be graduating and in part because the demand for them appears to be holding firm.

Starting salaries, as shown in Table 9, were up again in all major fields, with the highest offers going to electrical and chemical engineers and the lowest to civil engineers. The latter, however, are continuing to narrow the gap that has existed between their salaries and those of the other engineering fields since the surveys were started.



Source: Engineering Manpower Commission Placement Surveys.

FIGURE 8

TABLE 9

Starting Salaries of 1974 Engineering Graduates

Doctor's Degree Level

Curriculum	Average Dollars Per Month	Percent Increase Over 1973
Chemical Engineering	1550	7.8
Civil Engineering	1426	9.9
Electrical Engineering	1551	2.9
Mechanical Engineering	1479	4.3
Metallurgy and Related	1452	0.3
All Engineering Fields	1528	5.5

Source: The College Placement Council, Inc.

TABLE 7

Placement Status of Master's and Doctor's Degree Engineering Graduates - 1974 Compared with Previous Years

	Master's Degree					Doctor's Degree				
Placement Status	1970	1971	1972	1973	1974	1970	1971	1972	1973	1974
Newly Employed	38%	32%	38%	45%	49%	68%	74%	64%	69%	66%
Returning to Job	24	31	25	17	18	10	10	14	11	15
Full-Time Study	19	21	19	22	18	4	3	2	2	3
Military Service	9	8	7	7	4	3	3	2	3	1
Other Specific Plans	4	3	4	6	7	4	4	9	11	10
Graduates Committed (Totals of Above)	94	96	93	96	96	89	94	92	95	96
Considering Job Offers	3	2	3	2	1	3	3	3	3	2
No Offers or Plans	4	2	4	2	3	8	4	5	2	2
Total with Status Known	100	100	100	100	100	100	100	100	100	100

NOTE: Percentages may not add to totals because of rounding.

TABLE 8

Placement Status of Engineering Graduates by Curriculum - 1974

	Doctor's Degree Programs							
Placement Status	Chem.	Civil	Elec.	Eng.Sci.	Indust.	Mech.	Other	Total
Newly Employed	70%	72%	62%	58%	64%	68%	76%	66%
Returning to Job	10	12	21	23	5	18	9	15
Full-Time Study	5	0	3	11	2	*	*	3
Military Service	0	2	1	0	7	4	0	1
Other Specific Plans	9	13	12	4	20	4	13	10
Graduates Committed (Total of Above)	94	98	94	95	98	95	99	96
Considering Job Offers	4	0	2	*	0	3	0	2
No Offers or Plans-Seeking Employment	2	1	3	4	2	2	*	2
Not Seeking Employment	0	0	0	0	0	0	0	0

*Less than 1%

NOTE: Percentages are based on total with status known and may not add to totals because of rounding. Statistics based on 993 graduates reported, of whom no information was available on 86.

ASSOCIATE DEGREE TECHNOLOGY GRADUATES

Technicians also enjoyed a favorable employment climate this year, as indicated in Table 10. The major change since last year was a shift from continuing study to immediate employment. While 73 percent had accepted employment or were still considering job offers at the time of the survey, only 18 percent of the two-year graduates were continuing their education this year. This statistic points up the importance of the two-year programs as feeders into the higher educational system, because the associate degree curricula covered by the EMC survey are usually considered to be terminal in nature. Obviously, many of these programs also provide the graduate with credits that are directly transferable toward a bachelor's degree in engineering or other fields.

Data for this year's survey came about equally from schools with and without curricula accredited by ECPD. A comparison of the two groups, Table 11, shows significant differences. Students from the ECPD schools are twice as likely to continue their college study, with the result that the percentage available to enter employment is reduced. On the other hand, graduates of the ECPD schools are more likely to have no job offers or other plans. Since salaries commanded by the ECPD school students tend to be higher, there may be differences in the recruiting patterns followed by employers at the two types of institutions. Also, students with high class standing in the ECPD schools are more likely to be attracted to further study, and this could affect the approach taken by company recruiters on the two-year campuses.

TABLE 10

Placement Status of Associate Degree Technology Graduates

1974 Compared with Previous Years

Placement Status	1967	1968	1969	1970	1971	1972	1973	1974
Employed	63%	54%	63%	56%	47%	58%	61%	67%
Full-Time Study	15**	30	23	28	29	24	25	18
Military Service	7	7	6	7	8	3	1	2
Other Specific Plans	10	1	1	*	1	2	1	*
Graduates Committed (Total of Above)	95	93	94	91	85	87	88	87
Considering Job Offers	4	7	6	5	8	9	7	6
No Offers or Plans	1	*	*	4	7	4	5	6
Total with Status Known	100	100	100	100	100	100	100	100

*Less than 1%.

**In the 1967 survey the category of full-time study was not specifically included in the questionnaire, but was written in by some respondents and included in "other specific plans" by others. The true proportion going on to full-time study was probably about 24% for associate degree graduates.

NOTE: Percentages may not add to totals because of rounding.

TABLE 11

Placement Status of Two-Year Technology Graduates - 1974

ECPD Accredited and Non-Accredited Schools

Placement Status	All Schools No.	All Schools %	ECPD Schools No.	ECPD Schools %	Non-ECPD Schools No.	Non-ECPD Schools %
Employed	4233	67	1732	58	2501	75
Full-Time Study	1132	18	723	24	409	12
Military Service	106	2	63	2	43	1
Other Specific Plans	63	*	31	1	32	*
Graduates Committed (Total of Above)	5534	87	2549	85	2985	90
Considering Job Offers	388	6	192	6	196	6
No Offers or Plans-Seeking Employment	339	5	223	7	116	3
Not Seeking Employment	72	1	45	1	27	*
Total with Status Known	6333	100	3009	100	3324	100
No Information	401	-	236	-	165	-
Total Reported	6734	-	3245	-	3489	-

*Less than 1%.

NOTE: Percentages may not add to totals because of rounding.

The breakdown by curricula, Table 12, shows some evidence of weakness in the architectural, computer, and electrical technology programs. Surprisingly, aerospace graduates seemed to be in good demand this year, while civil and automotive technology curricula had more without job offers than last year. The more "hands on" kind of programs, such as air conditioning, automotive, drafting and manufacturing technologies, were noticeably less likely to produce graduates who continued full-time study. It is dangerous to generalize about the technology curricula because programs vary widely from school to school and curricula with similar names may be quite different in content. Also, local factors undoubtedly have a strong influence on the placement status of graduates from these schools.

The great variation within and among the technology curricula is illustrated by the salary statistics in Table 13. The overall mean starting salary for 1974 was $698 per month, with the average higher in the ECPD schools and lower in the others. The averages for most curricula were clustered quite closely around the overall mean, with automotive and architectural technology showing the lowest and chemical, mechanical, and electrical technology the highest starting salaries.

The figures for "Avg. Low" and "Avg. High" salaries in Table 13 are simply the arithmetical averages of the lows and highs reported by each school, and thus provide only rough limits on the range of salaries offered. Generally speaking, offers above or below these rough limits, while quite common, are probably based on individual factors. Because of the many variables affecting the local employment market for technicians, employers and placement personnel should use experience in their own locality to supplement and help interpret overall statistics such as those furnished by the EMC survey.

TABLE 12

Placement Status of Technology Graduates by Curriculum - 1974
Associate Degree Programs

Placement Status	Aero.	Air Cond.	Arch.	Auto.	Chem.	Civil	Computer	Drafting
Employed	53%	75%	60%	73%	73%	67%	60%	85%
Full-Time Study	27	11	17	7	15	16	20	8
Military Service	5	2	1	*	2	*	2	0
Other Specific Plans	7	1	1	1	0	1	*	2
Graduates Committed (Total of Above)	92	90	80	85	89	85	83	95
Considering Job Offers	6	10	5	6	11	7	6	2
No Offers or Plans-Seeking Employment	*	*	14	7	0	7	10	2
Not Seeking Employment	*	*	1	2	0	1	*	1

Placement Status	Electrical	Electronics	Indust.	Mfg.	Mech.	Other	Total
Employed	59%	65%	78%	80%	67%	73%	67%
Full-Time Study	18	19	17	6	24	10	18
Military Service	*	3	2	*	*	2	2
Other Specific Plans	*	*	0	*	1	*	*
Graduates Committed (Total of Above)	78	87	97	87	94	85	67
Considering Job Offers	11	6	2	6	4	6	6
No Offers or Plans-Seeking Employment	10	4	2	6	2	7	5
Not Seeking Employment	*	2	0	0	*	2	1

*Less than 1%.

NOTE: Percentages are based on total with status known and may not add to totals because of rounding.

TABLE 13

Monthly Starting Salaries of 1974 Technology Graduates

Associate Degree Level

Curriculum	No. of Schools	No. of Salaries	Avg. Low*	Mean Non-ECPD Schools**	Overall Mean	Mean ECPD Schools**	Avg High***
Aerospace	6	43	586	720	729	739	856
Air Conditioning	7	65	609	589	655	716	764
Architectural	12	83	529	594	643	685	859
Automotive	7	141	466	567	574	599	874
Chemical	8	39	655	-	773	-	807
Civil	30	251	640	666	707	720	849
Computer	14	149	642	661	701	719	760
Drafting	16	134	620	658	686	758	807
Electrical	28	246	604	729	746	754	890
Electronics	39	1029	617	686	708	760	875
Environmental	5	20	595	-	681	-	750
Industrial	11	70	650	748	723	721	788
Manufacturing	6	98	641	659	683	717	860
Mechanical	35	236	644	748	748	748	866
Other	16	80	653	593	722	777	869
All Curricula	64	2716	619	673	698	738	872

*Mean of the lowest figures reported by responding schools.

**ECPD schools are those having at least one engineering technology curriculum accredited by ECPD. Specific curricula for these schools may or may not be accredited. There were 46 ECPD schools and 18 others in the total of 64 included in this table.

***Mean of the highest figures reported by responding schools.

TABLE 14

Placement Status of Bachelor's Degree Technology Graduates

1974 Compared with Previous Years

Placement Status	1967	1968	1969	1970	1971	1972	1973	1974
Employed	70%	75%	72%	69%	60%	67%	76%	75%
Full-Time Study**	10	4	7	4	5	5	3	4
Military Service	11	13	12	9	13	7	5	3
Other Specific Plans	3	2	*	2	4	2	4	3
Graduates Committed (Total of Above)	93	94	91	84	81	81	87	84
Considering Job Offers	6	5	8	11	8	12	8	5
No Offers or Plans	1	*	*	5	11	7	4	11
Total with Status Known	100	100	100	100	100	100	100	100

*Less than 1%

**Because of differences in the survey methodology, data for the different years are not strictly comparable and indicate general trends only. In the 1967 survey the category of full-time study was not specifically included in the questionnaire, but was written in by some respondents and included in "other specific plans" by others.

NOTE: Percentages may not add to totals because of rounding.

TABLE 15

Placement Status of Technology Graduates by Curriculum - 1974

Bachelor's Degree Programs

Placement Status	Civil	Elec.	Indust.	Mech.	Other	Total
Employed	78%	69%	83%	77%	72%	75%
Full-Time Study	4	4	4	2	5	4
Military Service	2	3	3	5	3	3
Other Specific Plans	1	2	1	3	5	3
Graduates Committed (Total of Above)	85	79	91	86	85	84
Considering Job Offers	5	6	2	5	5	5
No Offers or Plans-Seeking Employment	10	13	6	8	7	10
Not Seeking Employment	*	1	*	*	1	1

*Less than 1%.

NOTE: Percentages are based on total with status known and may not add to totals because of rounding.

BACHELOR'S DEGREE TECHNOLOGY GRADUATES

The number of bachelor of technology graduates reported in this survey increased again this year. As at the associate degree level, there is a wide variation in the nature of curricula grouped together under traditional labels, ranging from ECPD-accredited engineering technology programs with a strong technical content to industrial technology curricula with a heavy emphasis on business and managerial skills.

Graduates of these programs shared in the strong industrial demand for new manpower, as indicated in Table 14. The percentage of those entering employment stayed about the same as last year, but there was an increase in those without job offers or other plans. The proportion of graduates continuing in full-time study was almost negligible at four percent.

The breakdown by curriculum, Table 15, indicates that electrical technology had the highest percentage without job offers or other plans. Since this curriculum had a large number of graduates, it was the main contributor to the overall increase in this category. Civil technology also had 10 percent without job offers. Graduates in the other fields listed were largely committed to one specific course of action or another by the time they left school.

Table 16 shows how the placement status of graduates differs in relation to ECPD accreditation of curricula in the schools. This year found the ECPD group less likely to be employed, less likely to be still considering offers, and more likely to have no job offers or other plans. Since these differences are not consistent from year to year, they are probably caused by changes in the composition of the group of schools responding to the survey rather than by fundamental changes in the employment picture.

TABLE 16

Placement Status of Bachelor's Degree Technology Graduates - 1974

ECPD Accredited and Non-Accredited Schools

Placement Status	All Schools No	All Schools %	ECPD Schools No.	ECPD Schools %	Non-ECPD Schools No.	Non-ECPD Schools %
Employed	1590	75	932	73	658	78
Full-Time Study	82	4	43	3	39	5
Military Service	68	3	35	3	33	4
Other Specific Plans	54	3	44	3	10	1
Graduates Committed (Total of Above)	1794	84	1054	82	740	87
Considering Job Offers	101	5	51	4	52	6
No Offers or Plans-Seeking Employment	204	10	150	12	54	6
Not Seeking Employment	24	1	23	2	1	*
Total with Status Known	2125	100	1278	100	847	100
No Information	324	-	232	-	92	-
Total Reported	2449	-	1510	-	939	-

*Less than 1%

NOTE: Percentages may not add to totals because of rounding. ECPD schools are those having at least one curriculum in engineering technology accredited by ECPD. However, some curricula may not be accredited.

The salaries offered to bachelor of technology graduates, Table 17, averaged $935 per month, a ten percent increase over 1973. Salaries at this degree level are much closer to the engineering range (Table 4) than to the technician averages (Table 13). Overall, there was little difference between ECPD and other schools, although the ECPD schools tended to be higher in most curricula. Some changes are undoubtedly the result of the movement of schools onto the ECPD list, thus shifting large blocks of data from one column to the other as compared to previous years. Such unavoidable artificialities in survey methodology must be discounted by users of the statistics. The comments about the range of salaries offered, as mentioned in connection with the associate degree statistics, also apply here.

TABLE 17

Monthly Starting Salaries of 1974 Technology Graduates

Bachelor's Degree Level

Curriculum	No. of Schools	No. of Salaries	Avg. Low*	Mean Non-ECPD Schools**	Overall Mean	Mean ECPD Schools**	Avg. High***
Aerospace	3	59	756	-	934	-	1075
Civil	16	213	747	908	957	969	1065
Electrical	31	577	763	948	935	930	1156
Industrial	16	260	753	838	892	935	1058
Mechanical	25	333	820	941	950	953	1105
Other	13	190	866	934	938	965	1056
All Curricula	41	1632	786	921	935	944	1099

*Mean of the lowest figures reported by responding schools.

**ECPD schools are those having at least one engineering technology curriculum accredited by ECPD. Specific curricula for these schools may or may not be accredited. There were 17 ECPD schools and 24 others in the total of 41 included in this table.

***Mean of the highest figures reported by responding schools.

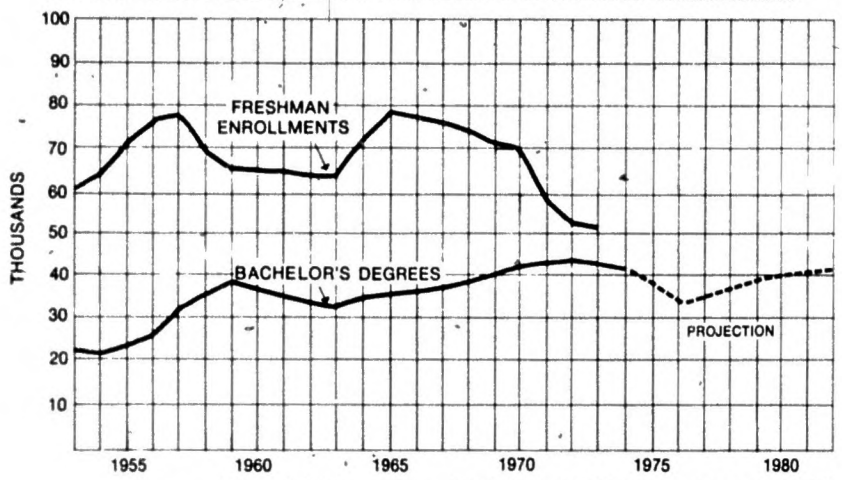
ENROLLMENT AND DEGREE TRENDS

The number of engineering graduates peaked between 1972 and 1974 and is projected to decrease for the next few years because of unusually small freshman classes that entered engineering colleges in 1971 through 1973. Projected trends through 1982 are shown in Figures 9 and 10 based on the data in Table 18. If these projections hold true, as seems probable, the supply of new entrants to the engineering profession during the next decade should remain fairly stable but at generally lower levels than prevailed during the last five years.

Technology degrees are more difficult to estimate because accurate statistics are lacking. Table 19 summarizes the data obtained from the Engineering Manpower Commission surveys of 1966 through 1973 for 2-year technology graduates and indicates the difficulty caused by the variety of programs involved. The conclusion drawn from a detailed comparison of matched sets of schools is that enrollments in 2-year programs are not growing very rapidly. In fact, the number of freshman enrollments decreased slightly from 1970 to 1971, and from 1972 to 1973. Since many of the 2-year graduates transfer to bachelor's degree programs, they are already accounted for to a large extent in those degree figures.

Bachelor of technology degrees are shown in Table 20. These programs appear to be growing faster than engineering programs, but there is some evidence that the two kinds of curricula are competing for the same group of students. If this proves to be the case, further growth in the number of technology graduates will be partially offset by decreases in engineering. The National Center for Educational Statistics estimates that the number of bachelor of technology degrees will increase by 500 per year from 6500 in 1974 to 12,500 in 1982.

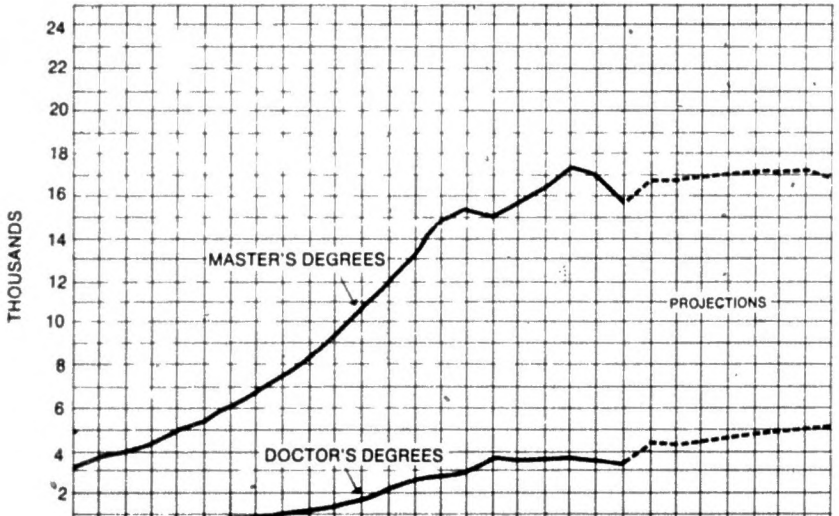
FRESHMAN ENROLLMENTS AND BACHELOR'S DEGREES IN ENGINEERING



Source All data from 1953 through 1966 are from U.S. Office of Education except as noted. Data from 1967 through 1974 are from E.M.C. annual surveys. Degree figures from 1975 through 1982 are projections by the National Center for Educational Statistics with bachelor's of technology graduates excluded from the bachelor's degree totals. Enrollments are for fall of the year indicated. Degrees are for the school year ending in June of the year indicated.

FIGURE 9

ENGINEERING MASTER'S AND DOCTOR'S DEGREES



Source All data from 1953 through 1966 are from U.S. Office of Education except as noted. Data from 1967 through 1974 are from E.M.C. annual surveys. Degree figures from 1975 through 1982 are projections by the National Center for Educational Statistics with bachelor's of technology graduates excluded from the bachelor's degree totals. Enrollments are for fall of the year indicated. Degrees are for the school year ending in June of the year indicated.

FIGURE 10

TABLE 18

Engineering Enrollments and Degrees[1]

YEAR	FRESHMEN ENROLLMENTS	FIRST DEGREES	MASTER		DOCTOR	
			ENROLLMENTS	DEGREES	ENROLLMENTS	DEGREES
1953	60478	24164	18323	3635	3001	592
1954	65505	22236	17205	4078	3283	590
1955	72825	22589	18482	4379	3163	599
1956	77738	26306	22274	4589	3402	610
1957	78757	31221	23840	5093	4180	596
1958	70029	35332	27833	5669	4763	647
1959	67704	38134	29355	6615	5643	714
1960	67556	37808	30817	6989	6445	786
1961	67575	35860	32054	7977	7869	943
1962	64707	34735	35359	8909	9240	1207
1963	65740	33458	37781	9460	10827	1378
1964	73682	35226	42159	10827	12622	1693
1965	79872	36691	44208	12246	13947	2124
1966	78400[2]	35815	–	13677	–	2303
1967	77561	36186	34231	13887	15376	2614
1968	77484	38002	24469	15152	15768	2933
1969	74113	39972	20014	14980	14298	3345
1970	71661	42966	23216	15548	14802	3620
1971	58566	43167	22405	16383	14100	3640
1972	52100	44190	22877	17356	13460	3774
1973	51925	43429	22588	17152	11904	3587
1974	–	41407	–	15885	–	3362
1975	–	36840	–	16980	–	4480
1976	–	33610	–	16890	–	4410
1977	–	35520	–	17000	–	4540
1978	–	37180	–	17110	–	4690
1979	–	38770	–	17090	–	4750
1980	–	39740	–	17160	–	4860
1981	–	40600	–	17210	–	4950
1982	–	41090	–	16950	–	5050

Notes:

[1] All data from 1953 through 1966 are from U.S. Office of Education except as noted. Data from 1967 through 1974 are from E.M.C. annual surveys. Degree figures from 1975 through 1982 are projections by the National Center for Educational Statistics with bachelor's of technology graduates excluded from the bachelor's degree totals. Enrollments are for fall of the year indicated. Degrees are for the school year ending in June of the year indicated.

[2] Estimate.

TABLE 19

Two-Year Technology Degrees[1]

Year Ending in June	Cert.	ASET	ASIT	Pre Eng.	Total 2-Yr.	No. of Schools
1966[2]	–	12244	9915	2923	25082	504
1967[2]	–	16445	13752	–	30197	517 (est.)
1968[3]	–	16920	1560	–	18480	369
1969[4]	–	18808		2383	21191	394
1970[5]	4136	17134		2731	24001	384
1971[5]	6113	18994		3374	28481	493
1972[5]	6768	20408		2098	29346	430
1973	5004	16563	6481	1753	29801	475
1974	431	15832	7389	1705	25357	443

Notes:

[1] Definitions and survey coverage have varied from year to year, therefore the data in this table cannot be relied upon to indicate definitive trends. Because of incomplete responses, the total figures for each year do not represent actual U.S. totals for the various kinds of programs covered. Column headings are as follows: CERT = Certificate, ASET = Associate in Engineering Technology, ASIT = Associate in Industrial Technology, Pre Eng. = Pre-Engineering transfer programs. The number of schools responding to each year's E.M.C. survey is given as an indication of coverage.

[2] Graduates for these years were estimated by the schools prior to graduation. Industrial technology figures are for "skill oriented occupational curricula of at least one year," whereas engineering technology figures are for 2-3 year programs only.

[3] Both ET and IT figures this year were for "associate degree or equivalent."

[4] No attempt was made this year to distinguish ET from IT degrees within the same technical field, or to distinguish certificates from associate degrees.

[5] No attempt was made these years to distinguish ET from IT degrees within the same technical field.

TABLE 20

Bachelor of Technology Degrees[1]

Year Ending in June	BSET	BSIT	Total BT	No. of Schools
1966[2]	264	879	1143	40 (est.)
1967[2]	–	–	–	–
1968	842	943	1785	46
1969	1911	947	2858	65
1970	2570	1535	4105	62
1971	3194	1810	5004	87
1972	4244	1243	5487	80
1973	4402	2076	6478	96
1974	4830	1613	6443	93

Notes:

[1] Definitions and survey coverage have varied from year to year, therefore the data in this table cannot be relied upon to indicate definitive trends. Because of incomplete responses, the total figures for each year do not represent actual U.S. totals for the programs covered. Column headings are as follows: BSET = Bachelor of Engineering Technology, BSIT = Bachelor of Industrial Technology. The number of schools responding to each year's E.M.C. survey is given as an indication of coverage.

[2] Graduates for these years were estimated by the schools prior to graduation.

PROSPECTS FOR 1975 AND FUTURE YEARS

The employment outlook for 1975 is somewhat uncertain because of economic recession. It is therefore unlikely that campus recruiting will be as strong as it was in 1974. On the other hand, the graduating class of engineers in 1975 is expected to be substantially smaller than that of recent past years. Also, engineers are reported to be in continuing strong demand in many sectors of the economy in spite of, or in some cases even because of, the business recession. The pressures of inflation, potential fuel shortages, and the need to achieve better utilization of materials and resources, create openings for engineers even when other occupations are being cut back. Efforts to increase domestic fuel production have produced an unusually high demand for mining, geological, and petroleum engineers. The growth of nuclear power requires more nuclear, mechanical, and electrical engineers Chemical and metallurgical engineers are being sought by the petroleum refining and metal extraction and processing industries.

The combination of a smaller supply of new graduates and continuing strong demand in many sectors of industry and government should provide good employment prospects for engineering graduates in 1975 and future years despite the uncertain economic picture. As Figures 4, 7 and 8 show, even the employment problems of 1971 and 1972 did not result in a serious reduction of job opportunities for new graduates in those years. If campus hiring activity is down somewhat in 1975 it will probably be reflected in fewer job offers per engineering graduate rather than in fewer graduates hired.

This kind of situation was exemplified by the 1973-1974 findings of the College Placement Council's survey of employers' hiring plans. The first survey, in December 1973, disclosed that recruiters were seeking 31 percent more engineers than they had hired in 1973. What was not initially pointed out was that such an increase was impossible because the prospective graduating class of 1974 was smaller than the previous year's. When the same recruiters were contacted again in June, it turned out that they had hired only 14 percent more engineers. However, the companies had not reduced their hiring goals; they had simply failed to reach their planned targets. The results as far as engineering students were concerned were intensified competition among employers, an excellent selection of job offers to choose from, and higher starting salaries.

Preliminary surveys of employers' hiring plans for 1975 show demand down considerably from a year ago but still more than adequate to provide jobs for all new graduates. The College Placement Council survey conducted during November and December showed that 700 employers planned to hire 9 percent more engineers than last year, in contrast to greatly reduced expected hirings of science, business, and non-technical graduates. A similar survey of 160 companies by Dr. Frank Endicott of Northwestern University also reported that the demand for engineering graduates was strong and that salaries offered were expected to be 5 to 7 percent higher than last year.

Unfortunately, there are indications that further cutbacks may be made in hiring plans before recruiters actually start appearing on the nation's campuses, in view of the worsening economic situation. Because of the smaller number of engineering graduates expected in 1975, even a moderate reduction in hires compared to 1974 could still provide enough jobs for all new engineers seeking employment. However, the average graduate can expect a smaller choice among job offers and some may encounter delays in actually starting to work. Under the uncertain business circumstances that will probably prevail through most of 1975, students would be well advised to make a serious effort to seek out openings and to accept good job offers as early as possible before graduation.

APPENDIX

"NO INFORMATION" REPORTS

As in past years, a number of respondents to this survey reported that they had no information on the placement status of many graduates. In order to reduce the degree of uncertainty in the statistics, replies which showed "no information" for more than about 30 percent of the graduates listed were excluded from the tabulations. This was done on the basis of a special analysis in 1972 which showed that most of the "no information" students were already placed, and that they were distributed among the various activities in about the same proportions as the graduates for whom status was reported. The new procedure substantially reduced the percentage of "status unknown" in the data used for this report.

As a check on the validity of the procedure, a separate tabulation was made in 1973 of the schools excluded from the basic statistics. These schools included 6,259 graduates, but no information was known for 3,104 of these, nearly half of the total. The placement statistics were then recomputed with these schools included. There was no difference in the statistics for the two largest groups, BS degree engineers and AS degree technicians. In the smaller groups, differences did not exceed 3 percentage points for any placement category.

The checks of the last two years indicate that the degree of uncertainty caused by "no information" responses was probably never a matter for serious concern, but can be even further minimized by simply excluding replies where the percentage of "no information" exceeds an arbitrary limit of about 30 percent, without detracting from the validity of the statistics. This procedure will continue to be followed in future surveys.

More fundamentally, however, it would be highly desirable if schools made a greater effort to keep informed of the placement status of their students. Schools that are able to report consistently on practically all of their students indicate that it is not too difficult to obtain the necessary information. Such a demonstration of interest on the part of the school in the career plans of its graduates would appear to offer many benefits to all concerned in addition to providing better statistics about the engineering profession.

EDUCATIONAL INSTITUTIONS PARTICIPATING IN THE 1974 PLACEMENT SURVEY

UNIVERSITIES AND COLLEGES

Aero-Space Institute
Arizona State University
Arkansas State University
Boston University
Brigham Young University
Brown University
Bucknell University
California Institute of Technology
California State Polytechnic University, Pomona
California State Polytechnic University, San Luis Obispo
California State University–Chico
California State University–Long Beach
California State University–Northridge
California State University–Sacramento
Carnegie-Mellon University
Catholic University of America
The Citadel
Clarkson College of Technology
Colorado School of Mines
Columbia University
Cornell University
Dartmouth College
Drexel University
Duke University
Florida Atlantic University
Florida Technological University
Georgia Igstitute of Technology
George Washington University
Grove City College
Gonzaga University
Hampton Institute
Harvey Mudd College
Howard University
Humboldt State University
Institute of Paper Chemistry
Institute of Textile Technology
Iowa State University
Kansas State University
Lafayette College
Lamar University
Louisiana State University
Louisiana Technological University
Loyola College
Loyola Marymount University
Manhattan College
Marshall University
Michigan State University
Michigan Technological University
Millikin University
Milwaukee School of Engineering
Mississippi State University
Monmouth College
Newark College of Engineering
New England College
North Carolina State University
North Dakota State University
Northeastern University
Northrop Institute of Technology
Northwestern University
Norwich University
Oakland University
Ohio Northern University
Ohio State University
Oklahoma State University
Old Dominion University
Parks College of St. Louis University
Pennsylvania State University
Philadelphia College of Textiles & Science
Polytechnic Institute of New York
Rensselaer Polytechnic Institute
Rochester Institute of Technology
Rockhurst College
Rose-Hulman Institute of Technology
St. Martin's College
Seattle University
South Dakota School of Mines & Technology
South Dakota State University
Southeastern Massachusetts University
Southern Illinois University
Stanford University
Swarthmore College
Syracuse University
Tennessee State University
Tennessee Technological University
Texas Technological University
Trinity College
Trinity University
Tufts University
Tulane University
Union College
University of Akron
University of Alabama
University of Arkansas
University of Bridgeport
University of California–San Diego
University of Colorado
University of Evansville
University of Florida
University of Georgia
University of Hartford
University of Hawaii
University of Houston
University of Illinois–Urbana
University of Iowa
University of Kansas
University of Maryland
University of Michigan–Ann Arbor
University of Michigan–Dearborn
University of Minnesota
University of Mississippi
University of Missouri–Columbia
University of Missouri–Rolla
University of Nebraska–Lincoln
University of Nevada–Reno
University of New Mexico
University of New Orleans
University of North Carolina–Chapel Hill
University of North Carolina–Charlotte
University of North Dakota
University of Ohio
University of the Pacific
University of Pittsburgh
University of Portland
University of Rhode Island
University of Rochester
University of South Alabama
University of South Carolina
University of Southern California
University of Tennessee–Chattanooga
University of Tennessee–Knoxville
University of Texas–Arlington
University of Texas–El Paso
University of Texas–Permian Basin
University of Toledo
University of Tulsa
University of Vermont
University of Washington
University of Wisconsin–Madison
University of Wisconsin–Parkside
University of Wisconsin–Platteville
University of Wyoming
Valparaiso University
Vanderbilt University
Villanova University
Virginia Military Institute
Virginia Polytechnic Institute
Washington University
West Virginia Institute of Technology
West Virginia University
Wichita State University
Wright State University
Yale University
Youngstown University

TECHNICAL INSTITUTES

Academy of Aeronautics
Arizona State University
Bluefield State College
Blue Mountain Community College
Brigham Young University
California State Polytechnic University–Pomona
California State Polytechnic University–San Luis Obispo
Central Missouri State University
Colorado Electronic Technical College
Community College of Allegheny County
Community College of Denver
Cuyahoga Community College
Del Mar College
DeVry Institute of Technology–Atlanta
DeVry Institute of Technology–Chicago
DeVry Institute of Technology–Dallas
DeVry Institute of Technology–Phoenix
Diablo Valley College
Eastern Illinois University
Electronic Institutes–Pittsburgh
Fairmont State College
Fayetteville Technical Institute
Florida Technological University
Florissant Valley Community College
Gaston College
Hawkeye Institute of Technology
Hudson Valley Community College
Indiana University-Purdue University–Indianapolis
Kansas Technical Institute
Linn Technical College
Louisiana State University
Miami-Dade Community College
Michigan Technological University
Middlesex County College
Midlands Technical College
Milwaukee School of Engineering
Mississippi State University
Missouri Western State College
Mohawk Valley Community College
Montana State University
Muskegon Community College
Nashville State Technical Institute
Newark College of Engineering
New Hampshire Technical Institute
New York City Community College
Norfolk State College
Northrop Institute of Technology
Norwalk State Technical College
Northwestern State University
Oklahoma State Technical Institute–Okmulgee
Oklahoma State University–Oklahoma City
Oklahoma State University–Stillwater
Oregon Institute of Technology
Parkland College
Parks College
Pennsylvania State University–Capitol Campus
Penn Technical Institute
Purdue University
Rochester Institute of Technology
St. Cloud State College
St. Petersburg Junior College
San Antonio College
Savannah State College
Sinclair Community College
South Carolina State College
Southeast Community College–Milford
Southeastern Massachusetts University
Southern Colorado State College
Southern Technical Institute
Southwest Minnesota State College
Spokane Community College
State Technical Institute–Memphis
SUNY A & T College–Canton
SUNY A & T College–Morrisville
Stark Technical College
Sumter Area TEC
Technical Institute of Alamance
Temple University
Tennessee Technological University
Texas A & M University
Texas Technological University
Thames Valley State Technical College
University of Akron
University of Dayton
University of Nevada–Reno
University of Tennessee–Martin
University of Wisconsin–Stout
Vermont Technical College
Wake Technical Institute
Samuel I. Ward Technical College
Waterbury State Technical College
Western Wisconsin Technical Institute
West Virginia Institute of Technology
Youngstown State University

FORM A

THE PLACEMENT OF BACHELOR'S DEGREE ENGINEERING GRADUATES—JUNE 1974

Name of Institution 156 Participating Schools Reporting Officer _____ Tel. No. _____

Address Summary Data City and State _____ Zip Code _____

Please complete the form below for all engineering graduates at the bachelor level of this year's graduating class. DO NOT INCLUDE EVENING SCHOOL STUDENTS. The data should be based on the situation prevailing as of the date of graduation, which will vary among schools. A summary of the results will be mailed to all participants.

Engineering Curriculum or Option	1 No. of Graduates in Each Curriculum (Total of Col. 2-10)	EMPLOYED		4 Entering Full Time Graduate Studies (Exclusive of Column 3)	5 Still Considering Offers of Employment	6 Entering Military Service	No Employment Offers Or Other Plans		9 Other Specific Plans (Incl. Foreign Students Returning Home)	10 No Information
		2 Accepted Regular Employment	3 Entering Full Time Grad. Studies Sponsored By Employers*				7 Seeking Employment	8 Not Seeking Employment		
Aerospace	406	189	2	74	17	59	21	4	5	35
Agricultural	206	117	2	38	10	6	8	3	9	13
Architectural Engineering	90	40	0	18	10	2	14	0	2	4
Ceramic	84	61	0	16	2	1	0	1	1	2
Chemical	1774	1086	4	274	54	35	54	7	57	203
Civil	3668	2238	5	451	146	137	190	16	58	427
Computer, Systems	361	199	1	51	21	13	35	2	5	34
Electrical-Electronic	4743	2728	23	722	151	202	254	15	101	547
Engineering, General	339	157	3	82	16	15	13	1	18	34
Eng. Sci., Phys., Mech.	428	186	1	103	16	17	34	5	4	62
Industrial, Mgt., Mfg.	1174	719	1	175	48	37	67	3	15	109
Mechanical	3081	2014	2	337	65	140	109	15	71	328
Metallurgical-Materials	318	190	0	49	9	8	20	0	5	37
Min., Geol., Geoph.	378	240	1	40	1	15	31	1	6	43
Naval Arch. Marine, Ocean	89	76	0	10	0	0	0	0	0	3
Nuclear	111	54	0	33	6	3	0	0	4	11
Petroleum	148	103	0	16	0	1	1	0	12	15
All Other Engineering	635	268	5	150	18	19	58	6	7	104
TOTAL OF ABOVE	18033	10665	50	2639	590	710	909	79	380	2011

*Include only students whose employment involves full time graduate study at employer's expense. Do not include ordinary scholarships or fellowships where student is not in an employed status. Students employed in an academic capacity (teaching and research assistant) incidental to graduate study should be included in Column 4.

PLEASE COMPLETE AND RETURN THIS FORM AS SOON AS POSSIBLE, PREFERABLY NOT LATER THAN JULY 31, 1974

When completed send to Engineering Manpower Commission • 345 East 47th Street • New York, New York 10017

FORM B

THE PLACEMENT OF ADVANCED DEGREE ENGINEERING GRADUATES–JUNE 1974

Name of Institution 88 Schools Reporting MS, Reporting Officer Tel. No.

Address 51 Reporting PhD Graduates City and State Zip Code

Please complete the form below for all engineering graduates at the master's or doctor's level of this year's graduating class. Include "engineer" degrees with master's. The data should be based on the situation prevailing as of the date of graduation which will vary among schools. A summary of the results will be mailed to all participatns.

PLACEMENT STATUS OF MASTER'S DEGREE GRADUATES

Engineering Curriculum	1 No. of Degrees Awarded (Total of Cols. 2-10)	EMPLOYED		4 Continuing Full Time Graduate Studies	5 Still Considering Offers of Employment	6 Entering Military Service	No Employment Offers Or Other Plans		9 Other Specific Plans (Incl. Foreign Students Returning Home)	10 No Information
		2 Newly Entering Regular Employment	3 Returning to Job Previously Held				7 Seeking Employment	8 Not Seeking Employment		
Chemical, Metallurgical, Etc.	402	186	25	96	2	10	14	0	26	43
Civil, Sanitary, Etc.	950	458	97	91	15	28	29	1	100	131
Electrical, Electronic, Etc.	1172	506	198	245	16	35	19	1	55	97
Engineering Sciences	466	134	128	53	1	21	6	0	6	117
Industrial, Etc.	742	225	178	73	4	31	14	1	65	151
Mechanical, Aero., Etc.	715	319	106	108	4	21	8	0	35	114
Other	802	376	88	148	10	23	34	3	44	76
Total of Above Master's Degrees	5249	2204	820	814	52	169	124	6	331	729

PLACEMENT STATUS OF DOCTOR'S DEGREE GRADUATES

Chemical, Metallurgical, Etc.	160	106	15	7	6	0	3	0	14	9
Civil, Sanitary, Etc.	103	61	10	0	0	2	1	0	11	18
Electrical, Electronic, Etc.	243	133	45	6	5	3	7	0	27	17
Engineering Sciences	144	76	31	14	1	0	5	0	5	12
Industrial, Etc.	45	28	2	1	0	3	1	0	9	1
Mechanical, Aero., Etc.	149	87	23	1	4	5	3	0	5	21
Other	149	107	13	1	0	0	1	0	19	8
Total of Above Doctor's Degrees	993	598	139	30	16	13	21	0	90	86

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FORM C

THE PLACEMENT OF ENGINEERING TECHNOLOGY AND INDUSTRIAL TECHNOLOGY GRADUATES—JUNE 1974

Name of Institution 73 Schools Reporting AS, Reporting Officer _____ Tel. No. _____

Address 38 Reporting BT Graduates City and State _____ Zip Code _____

Please complete the form below for current graduates of engineering and industrial technology curricula at both associate and bachelor's degree level. Do not include evening students. Data should be based on the situation prevailing as of the date of graduation, which will vary among schools.

CURRICULUM	1 Number of Graduates in Each Curriculum (Total of cols. 2-9)	2 Accepted Employment	3 Entering Full-Time Continuing Study	4 Still Considering Offers of Employment	5 Entering Military Service	No Employment Offers Or Other Plans		8 Other Specific Plans (Incl. Foreign Students Returning Home)	9 No Information
						6 Seeking Employment	7 Not Seeking Employment		
I. ASSOCIATE DEGREE OR EQUIVALENT									
Aerospace Eng. Tech.	134	68	35	8	7	1	1	9	5
Air Conditioning Tech.	281	207	31	27	6	1	1	4	4
Architectural Eng. Tech.	272	160	46	13	3	37	3	4	6
Automotive Eng. Tech.	566	397	36	33	1	35	8	7	49
Chemical & related Eng. Tech.	65	45	9	7	1	0	0	0	3
Civil & related Eng. Tech.	525	316	78	35	2	33	5	6	50
Computer Tech.	399	223	74	24	9	38	3	1	27
Drafting & Design Tech.	302	248	22	7	0	5	3	6	11
Electrical Eng. Tech.	669	369	110	96	6	62	5	6	42
Electronics Eng. Tech.	1544	957	281	91	44	64	29	5	73
Industrial Technology	394	279	62	6	6	6	0	0	35
Manufacturing & Indust. Eng. Tech.	194	152	11	12	1	12	0	1	5
Mechanical & related Eng. Tech.	606	386	138	24	3	9	4	8	34
Other Engineering Technology	538	373	50	32	9	34	10	1	29
2-Year Engineering*	245	53	149	0	8	2	0	5	28
TOTAL ASSOCIATES OR EQUIVALENT	6734	4233	1132	388	106	339	72	63	401
II. BACHELOR'S DEGREE IN TECH.									
Civil & related Eng. Tech.	374	244	11	15	7	30	2	4	61
Electrical-Electronic & related	831	509	31	46	23	98	10	16	98
Industrial Technology	453	331	18	10	11	24	1	6	52
Mechanical & related Eng. Tech.	401	278	6	17	17	30	2	11	40
Other Engineering Technology	390	228	16	15	10	22	9	17	73
TOTAL BACHELOR'S DEGREE TECH.	2449	1590	82	103	68	204	24	54	324

*2-Year engineering programs are usually considered non-terminal, but since many graduates do not continue full-time study, we are seeking information on the status of this group.

PLEASE COMPLETE AND RETURN THIS FORM AS SOON AS POSSIBLE, PREFERABLY NOT LATER THAN JULY 31, 1974

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Membership of the ENGINEERS JOINT COUNCIL

MEMBER SOCIETIES

ASCE	American Society of Civil Engineers
AIME	American Institute of Mining, Metallurgical, and Petroleum Engineers
ASME	American Society of Mechanical Engineers
ASAE	American Society of Agricultural Engineers
ASM	American Society for Metals
SME	Society of Manufacturing Engineers
SESA	Society for Experimental Stress Analysis
ISA	Instrument Society of America
ASQC	American Society for Quality Control
AIIE	American Institute of Industrial Engineers
SFPE	Society of Fire Protection Engineers
AIPE	American Institute of Plant Engineers
AACE	American Association of Cost Engineers
AIChE	American Institute of Chemical Engineers
NICE	National Institute of Ceramic Engineers
ASEE	American Society for Engineering Education

ASSOCIATE SOCIETIES

APCA	Air Pollution Control Association
ASNT	American Society for Nondestructive Testing
SPHE	Society of Packaging and Handling Engineers
IMMS	International Material Management Society
SWE	Society of Women Engineers
SHOT	Society for the History of Technology
WSE	Western Society of Engineers
LES	Louisiana Engineering Society
WSE-D.C.	Washington Society of Engineers
ESNE	Engineering Societies of New England
SCSE	South Carolina Society of Engineers
LACES	Los Angeles Council of Engineers and Scientists
HEC	Hartford Engineers Club
IMMS-NJ	International Material Management Society (New Jersey Chapter)
CES	Cleveland Engineering Society
SAME	Society of American Military Engineers
SAWE	Society of Allied Weight Engineers
ACI	American Concrete Institute
DEC	Danville Engineers Club
ACEC	American Consulting Engineers Council
NACE	National Association of Corrosion Engineers
ASGE	American Society of Gas Engineers
SES	Standards Engineers Society

210–74

Price $10.00