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ABSTRACT

A report on the placement status of engineering and technology graduates in 1972 is presented on the basis of survey data obtained from registrars and placement directors of institutions in the U. S. The numbers of graduates were: (1) 44,190 bachelor's, 17,003 master's, 353 engineer, and 3,774 doctorate degrees in engineering, and (2) 22,578 associate degrees, 6,768 certificates, 5,487 bachelor's, and 68 post-baccalaureate degrees in technology. Analyses are made in connection with placement status at each degree level, major curricula of favorable and unfavorable job climate, expected graduate shortage, student trends in schools accredited by the Engineers' Council for Professional Development (ECPD schools) and non-accredited schools, starting salaries, and chronological comparison. Job prospects for next year's graduates are characterized as excellent or good. Graduates of ECPD schools are more likely to continue further study in comparison with those from non-ECPD schools. The strongest demand is in civil engineering, followed by mechanical engineering; strong demand of women and minority members is found in all branches. Also included are statistical tables of varying-degree graduates versus institutions and curricula. (CC)

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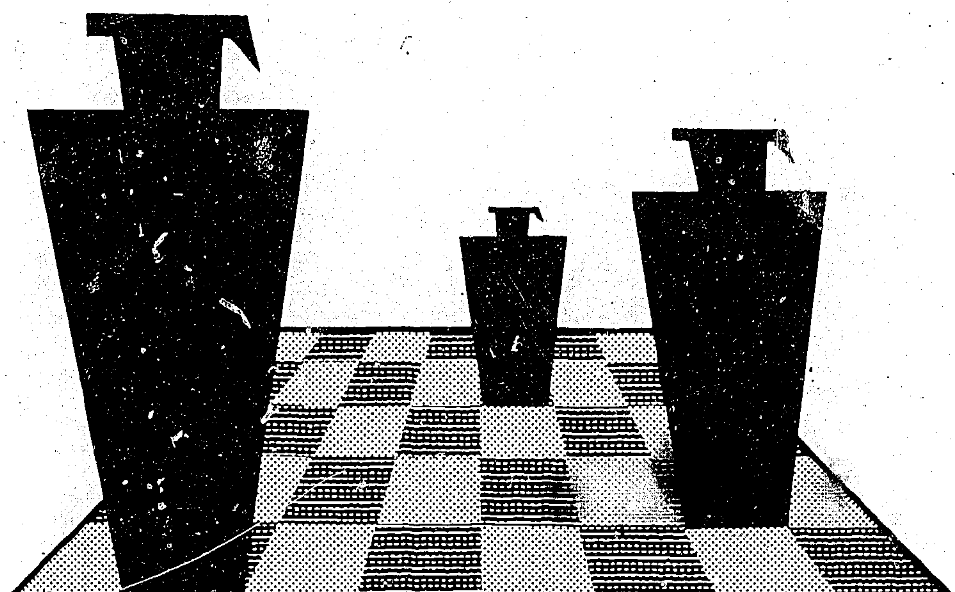
ENGINEERING AND TECHNOLOGY GRADUATES 1972



A REPORT BY THE

ENGINEERING MANPOWER COMMISSION
of
ENGINEERS JOINT COUNCIL
345 East 47th Street
New York, New York 10017

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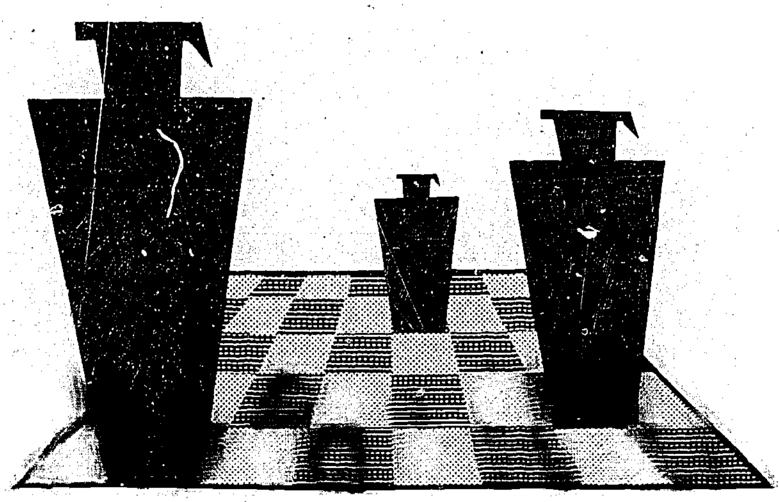

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DECEMBER 1972 $15.00

ENGINEERS JOINT COUNCIL

Engineers Joint Council (founded in 1941 and incorporated in 1958) is a federation 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.

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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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The surveys on which this report is based were conducted by Carol Iceland of the Engineers Joint Council staff. Miss Iceland also prepared the main degree tables and the degree section of the report. Christine Vachula typed the text and data tables for the placement section of the report. The overall project was under the general direction of John D. Alden.

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THE PLACEMENT STATUS OF ENGINEERING AND TECHNOLOGY GRADUATES 1972

THE OVERALL PICTURE

1972 began under the shadow of economic recession and comparatively high unemployment rates prevailing throughout 1971, but by June a definite upturn in college recruiting was evident. Statistically speaking, the placement situation for the class of 1972 was quite similar to that of the previous year, but the change in the job climate was almost universally attested to by placement officers in the nation's engineering schools. The EMC survey this year included a new question sheet on which placement directors were asked to give their observations and opinions on the current and future outlook for engineering graduates, and the comments received from 138 schools all over the country have been most helpful in interpreting the bare statistics.

Of the placement directors who replied, 64 percent said the employment situation for new graduates was better this year than last, 27 percent thought it was about the same, and only nine percent felt it was not as good. In response to a similar question about job prospects for experienced alumni, these same officials were almost as positive - 62 percent saw the picture as better, 32 percent noted no change, and six percent thought it was not as favorable as last year. The following comments are typical of those received in response to a request for the views of placement directors with respect to the 1972 employment situation:

Alabama. We experienced no difficulty in placing new engineering graduates.

Arizona. Virtually all foreign students carry a strong presumption of non-employability for several reasons: (a) typically, there is an 18 month limit to their employment, (b) security clearance considerations, (c) negative employer experience in hiring aliens, (d) statutory limitations.

Arizona. Improving - some employers are recruiting on campus during summer which is unusual.

California. Our generalized engineering programs would produce jobs if graduates' expectations were in line with reality.

California. Fewer companies visiting campus caught students by surprise and created a handicap. Actually, by contacting companies students found employment picture same or better than last year.

Connecticut. Engineering jobs are available but graduate has to go out looking (except for top men who still have a choice). Employers are more specific on type of job opening. Graduate opportunities come in regularly.

Connecticut. Opportunities are available. Much depends on personal intent of student-responsibility of officials to supply contacts to students-students again must sell themselves.

Florida. Appear to be substantially more employer inquiries than graduates.

Georgia. We have experienced a significant turn-around from a very dormant market during the wage-price freeze to a reasonable balance between supply and demand by late spring.

Hawaii. Reduction in force at local U.S. Government activities and in hiring by State resulted in more difficult situation. This was somewhat offset by increased recruiting activity by mainland aerospace employers.

Indiana. A number of firms got the green light on hiring about July (after second-quarter profits were studied.)

Louisiana. Much more activity on the write-in basis than on the campus interview situation is developing. This kind of opportunity requires more staff and paper work, but works to the advantage of our senior, who has always been willing to make the first move (and the second, and the next) toward the employer, either in person or on paper.

Massachusetts. Despite the depressed job market for engineers over the last two years their prospects for employment are as good as any other discipline and a bit better than most.

Michigan. Number of interview visits dropped 21% from last year, but there still seem to be enough jobs available for those who get out and hustle for them.

Missouri. Have had a substantial number of requests for last minute referrals during the past two months.

Nebraska. There was a sharp increase in hiring after the data was collected (on graduation day) resulting in a substantial reduction in the number still seeking employment.

New Jersey. Job listings for new graduates have increased in 2nd quarter of 1972.

New Jersey. Generally better job market and getting stronger although companies will continue to be very selective and cautious. Students who plan well should not have any difficulty.

New Mexico. It was more difficult to place students at the MS & PhD level than the BS level. All individuals who wanted a job were placed, except non-citizens. Those accepting employment averaged at least 3 job offers. The range for those with a higher grade point index was from 5 to 15 offers.

New York. Employers seem to largely meet their need for new employees from applications submitted by returning veterans and experienced graduates. Campus recruitors for new graduates are considering only outstanding candidates.

New York. With improvement in job situation since May, the placement of the present class is gradually improving. Many students worked on their own placement this year and since graduation the Placement Office has lost touch with the final outcome.

New York. The job situation has definitely bottomed out.

North Dakota. No one degree area was good or bad, most employers are looking for quality. Consequently the demand is for the BEST students regardless of curriculum or degree, with the demand being about the same across the board for our institution.

Ohio. In comparison with other BA graduates not in engineering, the employment situation for engineers is excellent. There has been a drop, though small, in the demand for our electrical graduates.

Ohio.	A general observation would be that more employers are now seeking a specific individual for a specific position rather than just hiring qualified engineers.
Ohio.	Although graduates must interview more and "sell" harder, employment opportunities are still in evidence.
Oklahoma.	To the best of our knowledge all of our students got positions.
Pennsylvania.	Employers have been ultra selective during the past two years. Some signs of loosening but these were not timely enough to make great impact on Class of '72. Employers have been unwilling to compromise specifications of candidates with available applicants (much like the market for alumni in '70 & '71.)
Pennsylvania.	Career openings are developing later for the class of 1972 than during previous years. Things are happening in June and July and probably will continue in August and later - that would have developed in April and May during the 1960s.
Pennsylvania.	Very little activity until about February 1. Demand has been growing for most engineers since then.
Pennsylvania.	Employers do not indicate as many opportunities or openings for research and development as they have in the past.
South Dakota.	Attitude and personal appearance still are major factors in determining the placement status of an individual.
Tennessee.	There appears to be more interest in graduates with 3 to 5 years experience than in recent graduates. They have had their "break-in" period and are ready to perform.
Tennessee.	The job market improved some in 1972, but the boom supply of graduates and backlog of alumni and military returnees meant it was very competitive.
Texas.	Signs show improvement in the offing, but present situation is much the same as last year.
Texas.	There is considerable emphasis now on minority hiring.
Utah.	To the best of our knowledge we have placed all graduates at all levels, and in all departments, who were seeking jobs.
Virginia.	It was much later in the year before the men were placed than it used to be. Fewer companies came to interview than in previous years. However, by the end of the school year all who wanted employment obtained it.
Washington.	Definitely improving.
Wisconsin.	A few of our graduates are still seeking employment but most had accepted jobs by graduation.
Wisconsin.	Seems to have bottomed out in January. Now improving steadily.

On the basis of statistics plus comments it appears that the strongest demand for graduates of the major curricula was in civil engineering, followed by mechanical engineering. Other curricula where demand was noticeably strong were the power option in electrical engineering, mining engineering, petroleum engineering, naval architecture and marine engineering, textile engineering, and welding engineering.

Demand was relatively weak in aerospace, agricultural, architectural, ceramic, chemical, and metallurgical engineering, and in the engineering sciences. Some placement directors singled out the doctorate level as an area of reduced demand. Interestingly enough, several also included such "glamor" curricula as bio-medical, ocean, and environmental engineering in their list of those where demand was weak, especially when these designations were applied to bachelor's degrees. Several comments indicated a distrust of some of the new programs as "gimmicky" or too much of an unknown quantity in comparison with the traditional basic curricula. Electrical and industrial engineering, both with large numbers of graduates, seemed to have uneven prospects this year, being listed as in strong demand at some schools, weak at others, but unexceptional at most. Women and minority members were reported to be in strong demand in all branches of engineering.

The directors were overwhelmingly of the opinion that the employment picture would continue to improve. Only four out of the entire group thought that it would be worse next year, whereas 82 percent thought the employment situation for 1973 would be better than this year and 15 percent about the same. In general, job prospects for next year's graduates were characterized as excellent or good. Among the major curricula, civil and mechanical engineers were expected to be in the strongest demand while electrical, chemical, and industrial engineers were seen as strong at some schools and less so at others. Of the smaller curricula the following were anticipated to be in particularly good demand: electrical power option, marine and naval architecture, mining, petroleum, and (with some dissenters) environmental. On the other hand aerospace, architectural, biomedica' ... etallurgical engineering, and engineering physics, ... ed as potentially weak. Some softness was also anticipated in computer science at several schools. Three or four placement directors felt that all new, hybrid, and specialized curricula were less likely to be in demand than the traditional fields. In general, the same curricula that were seen as particularly strong or weak this year were believed to have similar prospects next year. The following comments are representative of the placement directors' views of 1973:

California. Should be better and more opportunities for those who graduate. Enrollments are down in all categories.

California. I expect it to improve. Demand up and graduates about same. My students are being more selective and many will not interview employers in defense or aerospace.

California. Considerably better, particularly at the BS level. Early scheduling indicates more companies making campus recruiting visits.

Connecticut. Locally there is increasing demand.

Connecticut. Top students will not have too much trouble - just less of a choice than before. Instead of 4 or 5 offers, one or two. Bottom 10% academically will have to look more actively.

Connecticut. The only concrete evidence to employment that I can compare - company recruiting has picked up substantially. Based on our recruiting program and company correspondence - I feel job opportunities will pick up for now as well as next year's June graduates.

Florida. Very good - continuing to be more opportunities than graduates.

Georgia. 1973 is shaping up to be the best year since 1969. Supply and demand will be about balanced with considerable competition for the top half of the class; the less attractive candidates will still be struggling -- selling rather than buying -- but almost all will get good jobs. There are some "if's" -- the economy, inflation and, of course the election. Possibly some employers will look at the upcoming supply demand situation and attempt to hire against projected needs as was done in 1965 and 1966. This could increase demand beyond immediate needs.

Idaho. Continually improving. Already more interview dates on calendar for 1972-1973 than for all of 1971-72.

Indiana. I feel the situation will improve over 1972-but that a greater demand will occur in 1974 as new plants are about to be built, per the companies.

Kansas. At present we are placing all graduates that we have records or complete knowledge of. Next year should show a demand exceeding our supply.

Louisiana. More nearly stabilized; somewhat more on-campus interviewing even more write-in or call-in requests. Each student will need to mount a job campaign in order to achieve the choice he should be afforded. This has not been necessary during late 1960's, but is of benefit to the student under all conditions.

Louisiana. Space projects reactivation should help the people previously released in such areas.

Massachusetts. Continued improvement over 1971.

Michigan. Expect number of jobs to be about the same, but campus recruiting will continue to fall off. Only 1/2 as many visits booked for next year as we had at this time last year.

Missouri. Employers will have more jobs for new graduates, but will continue a very conservative pattern of candidate selection.

New Jersey. Good but certainly it will be influenced by the military needs and the political climate. Frankly wish we had more candidates.

New Mexico. Unless there is a dramatic change in the economic picture, all graduates who want work will be placed. Our greatest difficulty would be with those having a hybrid degree, e.g., B.S. in Mechanical & Business Administration; and those dealing specifically with environment. Looks very encouraging with the organization and counseling provided by the Engineering College, we do not anticipate a declining employment situation.

New York. There will be employment opportunities for graduating students with good records, who are properly motivated for employment.

North Dakota. As employers realize how limited a number of young people are entering the field, the demand will increase.

North Dakota. Indicators show a definite increase in the number of openings and the amount of recruiting. With the supply still high, competition will be keen and employers will still screen very closely for the best qualified people.

Ohio. I do not anticipate much increase in on-campus recruiting. There may be more offers from those recruiting. This was the case this year as fewer recruiters came, but made more offers.

Ohio. Significant improvements as economy stabilizes and improves.

Ohio. Good employment market for most disciplines.

Oklahoma. To date, the number of employers scheduling campus visits exceeds the 1971-1972 figure; therefore, it is assumed the employment situation will improve.

Pennsylvania. Continued improvement in number and variety of jobs. Will continue to be tight for students with low grades or little or no career perspective. Notice more students in Junior year planning job hunting strategy to be implemented during senior year. Employers seemed to be pointing toward 10-20% increase in hiring levels next year. Will still be significantly below quotas of late 60's and we will probably never see a return of this condition.

Pennsylvania. Selectivity probably will continue to be high.

Pennsylvania. Increased demand of 10 to 15% for all types of engineers. There is an expected decrease in the number of engineering graduates and it is expected that employers will react to this.

Pennsylvania. Steady growth of opportunities.

South Dakota. A slight increase in number of companies interviewing on campus. With fewer seniors graduating, more job opportunities per senior but early acceptances will still be a significant factor. The needs of industry and government will be increasing as the economy picks up and as a result, demand for engineers will pick up accordingly.

Tennessee. Jobs should be more plentiful - many employers have not hired for 2 or 3 years and are beginning to feel the pinch of personnel shortage. Not much action until after the November election, however.

Tennessee. Believe there may be a continued decline in campus interviews, but an increase in listing of individual jobs via correspondence or telephone.

Texas. It appears that there will be a 10 to 15 percent increase in next year's recruiting and employment as far as this University is concerned.

Utah. We expect improvement in the number of job offers per graduate. Anticipate continued increases in salary offers.

Virginia. We see an improving employment situation as we move into and through 1973. Most key economic indicators point to an increase in activity on many fronts. Our contacts with employer representatives indicate that they will be seeking a greater number of college and trained employees next year. We do not see indicators yet of any great increase in the demand for PhD's. This situation will probably be with us for several more years.

The picture four to five years from now is almost universally seen as good to outstanding. Not one director thought it would be unsatisfactory in any way. Many pointed to current declines in enrollment as lea' 'nevitably to a shortage of graduates, and therefore excell prospects, in the years ahead. The comments below represent typical replies to this part of the questionnaire:

Alabama. There will be a terrific shortage of engineering graduates in 1976-77, if trend continues of a drop in engineering enrollments. Current publicity on lack of jobs for engineering talent in my opinion is misleading and should be corrected, otherwise I foresee crash programs required to meet engineering talent needed for the 1980's.

Arizona. Excellent opportunities. Shortage of graduates in some fields.

Arkansas. There should be plenty of jobs in engineering 4-5 years from now.

California. Increased interest in jobs formerly unappealing to engineers but suited to their skills i.e. Planning. Also increased demand in these fields due to availability of engineers.

California. Higher wages to get available engineering talent. Will go from oversupply to under-supply.

Connecticut. The demand for engineers should be stronger, with less graduates available. There will be an emphasis on new specialities relating to the new national goals in environment and urban problems.

Connecticut. As far as technical people are concerned 4-5 years from now there will be a definite shortage of engineers which, of course, will increase job opportunities for those majors in that discipline.

Florida. Enrollment stable to slight increase (we have continued to grow even during these two relatively bad years). Employment situation very good. Shortages are already beginning to appear. Surely we are at the mercy of the popular press. The recent hiatus and attendant publicity has had serious deleterious effects from which we won't recover in 4-5 years.

Georgia. By 1974-75 and beyond for several years, we probably will be back in the 1966-69 scramble again for engineers. Employers will be more careful where they place BS and MS engineers with emphasis on 2 and 4 year technology degree holders for the lower level positions. This will not have a serious effect on engineering employment but should make each position more pure and enjoyable to the graduate engineer.

Hawaii. Improved. Emphasis to shift from military applications to environmental control.

Idaho. Shortage of engineers to fill available jobs.

Indiana. Although I do not anticipate a return to the decade of the '60s I feel there will be a definite upswing, with the increasing demand for goods and services. If and when government funds become available, I anticipate a sharp increase in space technology.

Kansas. Acute shortage by 1975. Action should be taken to inform present high school students of opportunities in engineering in order to meet anticipated demand.

Louisiana. Sensational for the graduating senior because of the small input class sizes of 1970, 1971. I think the whole profession will profit by the reduced number of new graduates.

Massachusetts. Supply should not meet demand when the low enrollment classes are graduated. Four year engineering technology graduates will have a significant impact. Graduate engineers will not be underemployed in basically technology positions.

Massachusetts. Not like the mid-sixties but better than 1970-71, 1971-72 years. Some schools may tend, unfortunately, to create impression that new areas which are only on the horizon now will be the major educational goals. Should not let basic engineering courses such as ME, EE, ChE, CE, etc. take a "back seat."

Missouri. A 40% shortage of available new engineering graduates to meet the job demand based on current enrollments. We need more women and bl[illegible] enrolling in engineer[illegible] [illegible] ways must be found t[illegible] the [illegible] engineering profession.

Nebraska. Employment opportunities will be very high.

New Jersey. Great need for engineers. I anticipate a shortage because needs will be up and present enrollments are declining. We must pay close attention to trends and shifts in needs.

New Mexico. Now is the time for high school graduates to very seriously consider the future possibilities in engineering. I believe the profession will be more challenging. Based on the future, the engineering discipline has a better outlook for employment possibilities. The field should not be crowded and the engineer will be in demand.

New York. Students will be enrolling in engineering due to their interests rather than the demand for engineers. They should be better students and have greater interest in the profession which will improve their prospects for employment. As experienced engineers and veterans become re-established the demand for new graduates will improve. With reduced enrollments the demand for quality engineers will return soon.

New York. It should be a seller's market for the freshmen entering this year since demand is already picking up and the input has declined nationwide.

North Carolina. Engineering graduates (except aerospace) will be in a much stronger position at the BS level and an improved position at the MS level- the PhD will still be problematic.

North Dakota. Projecting five years ahead, I see a renewal of the frantic demand we saw in the 60's. Supply will not meet the demand. Incoming students and high school seniors must be made aware of the projected opportunities that will persist when they receive their degrees five years from now.

Ohio. With declining enrollments, I anticipate a shortage of candidates for the companies recruiting at my school. The market for our graduates should be much better than now, though it is good now. I am disturbed that the engineering profession has allowed the nationwide flood of negative publicity concerning engineering employment to go unchecked. This is the cause of declining enrollments and will result in the possibility of a shortage which creates too great expectations on the part of new engineers. This situation could again lead to a depressed market in future years as has been the case recently. There is no reason why the supply and demand for engineers cannot be leveled without these constant high and low periods brought on by certain special problem areas. A shortage market does nothing but harm to students and employers.

Ohio. Local enrollment is closely following national trend, i.e. declining. Forecasts all point toward steadily improving economy which would indicate a strong demand and shortage of engineers in the mid to late 70's. Predict much higher utilization of 2-4 year technology personnel coupled with more emphasis on positions for M.S. engineering degrees.

Ohio. Can honestly see an ongoing need for professional engineers, especially those with a background in environmental applications.

Oklahoma. Expect a considerable shortage of engineers to develop in this period of time. Enrollment is trending downward and will affect the supply of engineers.

Pennsylvania. The most important element in the job market during this period, assuming the present trends continue, will be the push by employers for candidates with realistic career perspective and an ability to undertake practical engineering problems. More emphasis upon design, manufacturing and service assignments.

Pennsulvania. We suspect that the need for engineers will be relatively strong in 4-5 years, perhaps never again as strong as it was in the mid 1960's - but nevertheless very substantial.

Pennsylvania. Due to the decrease in the 1976 engineering freshman class, it would appear that engineers will be in as much demand as they were in the mid-fifties and sixties. Engineering enrollment will decrease until the demand for engineers reaches a point where high school counselors will again suggest engineering as a career.

South Dakota. A strong demand for all seniors who have a solid academic background, have been active in campus organizations, and who are willing to re-locate anywhere in the United States. A realistic balance of all types of engineers and the needs of industry.

Tennessee. Declining enrollment in engineering should create a shortage of graduates by 1976 or so. Earlier retirement and the fact that many engineers "get out of engineering" after a few years work will add to this demand. Quite a few employers are really hiring engineers for "management" jobs vs. strictly engineering work. This means that more employers are seeking graduates with such potential if it can be identified early. Many engineering graduates seek to improve their management potential by course work, etc. This trend should continue.

Tennessee. A shortage of engineers in the traditional engineering fields - civil, electrical, mechanical, chemical, except an increase in 2 year technical school graduates may take up some of the slack. Some space and defense agencies may find great competition for graduates. The plight of the engineers recently affected by lay-offs in those fields has created a credibility gap.

Texas. I expect an improvement in the economy, a shortage of B.S. engineering students, and a decided increase in the demand for B.S. engineering graduates. Anticipate decided need for engineers in environmentally related work as distinguished from the dilettante, pseudo-scientist purporting to be concerned with environmental matters.

Utah. Engineers of all types will be in very short supply.

Virginia. Our graduates in engineering have fared very well since the early '30's but it is possible to foresee more engineers employed in roles not purely engineering in character.

Virginia. We would estimate a continuing improvement in the overall employment situation. The past two years has caused many students and institutions of higher education to become concerned with programs of career information or orientation. Persons graduating from colleges and universities in the future should be better informed and motivated concerning career possibilities. We agree with those who predict an engineer shortage toward the end of '70's. The great majority of our national priorities will require the engineers' expertise. The demand for the engineers' talents will continue to increase through the 70's raising the question - will the supply be adequate to meet this demand?

Washington. It's got to be excellent; dropping enrollments plus population and economic growth has to mean more jobs and fewer new engineers to fill them. Strong possibility of serious national shortage of engineers.

Wisconsin. I think we will again be back in a rather severe shortage in engineering. The news media have again distorted the market which so adversely affected enrollment. The expected big push to solve social and environmental problems will have to involve engineers. Social theory will not clean up sewage and pollution. That, plus housing, mass transit, etc. can only be solved by technology.

This year the proportion of bachelor's degree graduates who had accepted or were still considering job offers increased by four percentage points over 1971, while the percentage going directly to graduate school remained steady at 20 percent and the number entering military service decreased to a pre-Viet Nam level of nine percent. On the other hand the number without job offers or other plans rose to 11 percent, which in past years would have been interpreted as a shortage of job opportunities. Comments of the placement directors, however, indicate that we are witnessing a new phenomenon, with substantial numbers of new engineering graduates taking a relaxed approach and simply postponing entry into the world of work. In contrast to 1970 and 1971, when students felt under pressure to seize the first good job offer that came their way, many graduates of the class of '72 seem to be sufficiently confident of the future to wait a few months before making a career commitment. A handful of placement directors noted some evidence of discouragement or disillusionment among a few of their students, but in general the uncommitted graduates just seem to be relaxing after the pressures of the last few years.

The following comments are typical of those noting the change in student outlook.

> "For this class, at least, a new trend seems to have developed. There were almost as many graduates that did not seek employment as those that did. They had no plans for either employment or graduate school. Apparently they intend to do nothing or take temporary jobs until they decide what they really want to do."

> "These days there are some students who do not want to get involved in what the students term 'the recruitment hassle'.

These students often choose to seek out companies independently and to present their credentials individually. Each year a small but consistent group of students is not sure of their future and choose to 'look around' instead of actively seeking work. Eventually they return to seek our assistance, realizing that their four years at school have provided an excellent foundation for a variety of careers."

At the master's degree level trends were similar to the bachelor's degree graduates but less distinct in nature. Changes in the doctor's degree placement statistics, which are based on a relatively small number of graduates, tend to present an erratic pattern. At both advanced degree levels, however the proportion of graduates without job offers or other plans was quite low.

In the technology programs, associate degree graduates showed a strong commitment toward employment and somewhat away from further study, although the statistics for this group reflect an increased representation of non-ECPD schools. Bachelor of technology graduates continued to show placement characteristics similar to previous years, with only five percent going on to advanced study and seven percent without job offers or other plans.

As usual, graduates of ECPD schools at practically all levels were more likely to continue further study, while students from the non-ECPD schools were more oriented toward employment. (An ECPD school has at least one curriculum in engineering or engineering technology, as appropriate, accredited by the Engineers' Council for Professional Development.) Individual curricula differed widely as to the placement status of their graduates, but the differences this year were similar in most respects to those disclosed by past surveys. Details will be found in the tables and text elsewhere in this report.

Starting salaries for technology graduates as collected by the EMC survey are not directly comparable to previous years because of a tremendous increase in the number of non-ECPD schools reporting. Many of these schools have industrial arts or industrial technology curricula rather than engineering technology, and their graduates tend to draw lower salaries, at least at the associate degree level. It is perhaps significant that average salaries for graduates of the ECPD schools increased from $637 per month to $647 even though the overall mean for all graduates would appear to have decreased. At the bachelor's degree level it is interesting to note that the non-ECPD technology schools have a salary advantage over the ECPD schools in the civil, electrical, and industrial curricula. The overall mean salary of $825 per month for bachelors of technology compares favorably with the average of $872 reported by the College Placement Council for engineering graduates.

One school reported salary ranges for Master's degree recipients in industrial technology, with an average of $1,120 and a range from lowest to highest of $900 to $1,400 per month.

BACHELOR'S DEGREE ENGINEERING GRADUATES

The class of 1972 saw an improvement in the employment picture this spring after the recruiting slump of 1970-71. Many placement directors observed a turnaround in the last months prior to graduation as companies resumed hiring and discovered that the supply of available new engineers was not as plentiful as they had supposed. The proportion of graduates who had accepted employment or were still considering job offers increased slightly over last year but the number with firm commitments was down four percentage points to 84 percent. This result was brought about by a five-point decrease in the number entering military service and an increase in those without job offers or other plans. Comments received from placement directors in response to a special EMC questionnaire make it clear that job offers were not lacking; rather, more students than in previous years were taking a relaxed view of the situation and were simply delaying their decision on a future course of action until fall or later. (See the discussion under <u>THE OVERALL PICTURE</u> for additional information on the general employment situation as seen by placement directors.)

Trends in the placement picture since 1958, when the Engineering Manpower Commission began this series of surveys (none were conducted in 1962 and 1963) are shown in Table 1. It will be noted that the percentage of new graduates going directly into advanced study did not change from 1971 to 1972 and is still well

TABLE 1

Placement Status of Bachelor's Degree Engineering Graduates

1972 Compared with Previous Years

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

below the peak levels of 1965-1967. On the other hand, the relatively unfavorable employment climate seems to have had little effect in causing new graduates to change their plans for graduate school. As conditions become more prosperous it is probable that the popularity of advanced degree study will resume the upward trend that was interrupted by changes in the draft regulations between 1967 and 1969.

Table 2 compares the placement status of graduates on the basis of ECPD acceditation. As usual the ECPD schools showed more students going into graduate study and fewer entering employment. Graduates of the non-ECPD institutions were more likely to have definite plans. These differences have been apparent in previous EMC placement surveys.

TABLE 2

Placement Status of Bachelor's Degree Engineering Graduates - 1972

ECPD Accredited and Non-Accredited Schools

Placement Status	All Schools		ECPD Accredited Schools		Non-Accredited Schools	
	No.	%	No.	%	No.	%
Employed	10305	53	9816	52	489	70
Employed and Entering Full-Time Graduate Study	151	*	149	*	2	*
Entering Graduate Study	3767	19	3699	20	68	10
Entering Military Service	1721	9	1674	9	47	7
Other Specific Plans	435	2	423	2	12	2
Graduates Committed (Total of Above)	16379	84	15761	84	618	88
Considering Job Offers	1018	5	961	5	57	8
No Offers or Plans	2125	11	2101	11	24	3
Total with Status Known	19522	100	18823	100	699	100
No Information	4837	--	4758	--	79	--
Total Reported	24359	--	23581	--	778	--

*Less than 1%

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

TABLE 3

Placement Status of Engineering Graduates by Curriculum - 1972

Bachelor's Degree Programs

Placement Status	Aero.	Agr.	Arch.	Ceram.	Chem.	Civil	Elec. & Elex.	Eng. Gen.	Eng. Sci. Phys./Mech.
Employed**	44%	52%	39%	47%	48%	59%	54%	43%	34%
Entering Full-Time Graduate Study**	20	17	9	25	25	19	20	26	39
Entering Military Service	20	13	5	5	6	8	8	7	8
Other Specific Plans	2	2	16	2	3	2	2	4	3
Graduates Committed (Total of Above)	86	85	70	76	81	86	83	82	84
Considering Job Offers	4	6	17	6	7	4	5	5	4
No Offers or Plans	10	10	13	18	12	9	12	13	12

Placement Status	Indus.	Mech.	Metal.	Min. & Geol.	Nav.	Nuc.	Petro.	All Others	Total
Employed**	54%	58%	46%	69%	69%	44%	79%	47%	54%
Entering Full-Time Graduate Study**	20	16	23	18	9	36	9	25	20
Entering Military Service	10	8	10	6	11	13	5	11	9
Other Specific Plans	2	2	2	3	2	*	2	3	2
Graduates Committed (Total of Above)	87	83	82	96	92	93	95	86	84
Considering Job Offers	3	6	7	*	6	1	3	5	5
No Offers or Plans	10	11	12	3	2	6	1	9	11

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

There were many differences among the different curricula this year, as indicated in Table 3. In attempting to draw conclusions from a comparison of curricula, or from results of past years, care should be taken to note that relatively small numbers of students are involved in the smaller programs. Therefore some changes may be more apparent than real, depending on which schools happened to reply or on other factors unrelated to the employment situation. The comments of placement directors as reported earlier provide helpful insights to aid in evaluating the bare statistics.

Salaries offered to engineering graduates this year were only slightly higher than in 1971, as reported by the College Placement Council, but led all other curricula at the bachelor's level. Table 4 gives the CPC averages for major fields.

TABLE 4

Starting Salaries of 1972 Graduates

Bachelor's Degree Level

Curriculum	All Graduates: Average Dollars Per Month	All Graduates: Percent Increase Over 1971	CO-OP Programs: Average Dollars Per Month	CO-OP Programs: Percent Increase Over 1971
Aeronautical Engineering	884	2.8	939	5.9
Chemical Engineering	928	0.9	934	0.3
Civil Engineering	869	2.2	868	0.1
Electrical Engineering	888	1.3	906	1.0
Industrial Engineering	871	0.6	897	3.0
Mechanical Engineering	894	1.5	909	2.5
Metallurgical Engineering	881	0.8	892	-0.6
Men, All Engineering Fields	892	1.7	908	1.7
Women, All Engineering Curricula	893	0.9	NA	NA
Physics, Chemistry, Mathematics	795	0.1	869	3.7
Non-Technical (Average)	781	2.6	819	3.1

Source: The College Placement Council, Inc.

MASTER'S DEGREE ENGINEERING GRADUATES

Graduates at the master's level did well this year, with only four percent indicating no job offers or plans, while 66 percent were employed or considering job offers. The breakdown for the major curricula as given in Table 5 shows most fields to be in good shape, except for a slight weakness in chemical engineering. The percentage returning to jobs already held dropped by six points compared to last year, but the statistics are almost identical to those for 1970, as listed in Table 7. It is impossible to determine whether this is due to a decrease in the number of employed engineers pursuing degrees or is simply an accident of the schools that happened to provide data this year. As in previous years, nearly one fifth of the master's degree graduates were continuing full-time study, presumably toward the doctorate.

Salaries offered continued to show little or no increase over last year, as shown in Table 6. However, the averages for engineers topped all other fields except for technical undergraduates receiving the MBA. Both the placement and salary figures are in contrast to the impression among placement officers and company personnel managers that the demand for master's degree engineers was lower than that for bachelor's degree graduates. If employers were less enthusiastic about hiring the advanced degree people, their actions did not reflect it in a measurable way.

TABLE 5

Placement Status of Engineering Graduates by Curriculum - 1972

Master's Degree Programs

Placement Status	Chem.	Civil.	Elec.	Eng. Sci.	Indust.	Mech.	Other	Total
Newly Employed	37%	46%	33%	26%	40%	37%	41%	38%
Returning to Job	13	18	30	37	28	26	27	25
Full-Time Study	29	15	20	22	11	18	18	19
Military Services	4	7	6	8	6	10	7	7
Other Specific Plans	7	6	3	3	8	3	1	4
Graduates Committed (Total of Above)	90	92	92	96	94	94	95	93
Considering Job Offers	4	3	4	*	2	2	*	3
No Offers or Plans	6	4	4	4	4	4	4	4

*Less than 1%

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

TABLE 6

Starting Salaries of 1972 Graduates

Master's Degree Level

Curriculum	Average Dollars Per Month	Percent Increase Over 1971
Chemical Engineering	1055	0.1
Civil Engineering	993	1.5
Electrical Engineering	1018	0
Industrial Engineering	1018	1.4
Mechanical Engineering	1030	1.1
Metallurgy and Related	1036	4.9
All Engineering Fields	1024	1.4
Business Administration, Management*	1177	1.6

*After technical undergraduate degree.

DOCTOR'S DEGREE ENGINEERING GRADUATES

Tables 7 and 8, which give the placement statistics for this group, indicate little major change over the last two years. There does appear to be an increase in the percentage of graduates with other specific plans, but the nature of these plans was not disclosed by the survey returns. Possibly some post-doctoral appointments were reported here rather than under full-time study. The miscellaneous "other" group showed the highest percentage without job offers or plans, and chemical engineering was perhaps a bit weaker than the other curricula at the doctorate level as well as the master's degree level.

TABLE 7

Placement Status of Master's and Doctor's Degree Engineering Graduates - 1972 Compared with Previous Years

	Master's Degree			Doctor's Degree		
Placement Status	1970	1971	1972	1970	1971	1972
Newly Employed	38%	32%	38%	68%	74%	64%
Returning to Job	24	21	25	10	10	14
Full-Time Study	19	21	19	4	3	2
Military Service	9	8	7	3	3	2
Other Specific plans	4	3	4	4	4	9
Graduates Committed (Totals of Above)	94	96	93	89	94	92
Considering Job Offers	3	2	3	3	3	3
No Offers or Plans	4	2	4	8	4	5
Total with Status Known	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 - 1972

Doctor's Degree Programs

Placement Status	Chem.	Civil	Elec.	Eng. Sci.	Indust.	Mech.	Other	Total
Newly Employed	66%	65%	61%	73%	58%	64%	61%	64%
Returning to Job	8	16	19	17	8	10	18	14
Full-Time Study	8	2	2	0	1	2	*	2
Military Service	1	3	2	1	3	3	*	2
Other Specific Plans	8	8	8	4	26	10	9	9
Graduates Committed (Total of Above)	91	95	93	96	96	89	89	92
Considering Job Offers	3	2	2	1	4	4	2	3
No Offers or Plans	6	4	5	3	0	7	9	5

*Less than 1%

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

Starting salaries are shown in Table 9, and here the advances over last year were varied. However, in no non-engineering field were doctorate salaries as high as those offered to engineers.

TABLE 9

Starting Salaries of 1972 Graduates

Doctor's Degree Level

Curriculum	Average Dollars Per Month	Percent Increase Over 1971
Chemical Engineering	1405	0.7
Civil Engineering	1227	11.3
Electrical Engineering	1439	3.7
Mechanical Engineering	1381	8.1
Metallurgy and Related	1331	1.3

Source: The College Placement Council, Inc.

ASSOCIATE DEGREE TECHNOLOGY GRADUATES

Graduates of the two-year technician programs also shared in the employment upturn of 1972, according to the results of the EMC survey. Although the overall statistics presented in Table 10 indicate an increase of eleven percentage points in the number entering employment, the figures must be interpreted with caution because of the greatly increased response to this year's questionnaire. Nearly 2 1/2 times as many students were covered this year as in 1971. Since much of the increase came from schools without ECPD - accredited curricula, some of the apparent change over last year must be attributed to the different composition of the two surveys.

TABLE 10

Placement Status of Associate Degree Technology Graduates

1972 Compared with Previous Years

Placement Status	1967	1968	1969	1970	1971	1972
Employed	63%	54%	63%	56%	47%	58%
Full-Time Study	15**	30	23	28	29	24
Military Service	7	7	6	7	8	3
Other Specific Plans	10	1	1	*	1	2
Graduated Committed (Total of Above)	95	93	94	91	85	87
Considering Job Offers	4	7	6	5	8	9
No Offers or Plans	1	*	*	4	7	4
Total with Status Known	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, however, gives the statistics broken down according to ECPD status of the schools, and shows that graduates from both types of institutions were more likely to enter employment and less likely to continue study than was the case last year. The number entering military service was much lower this year, as among engineering graduates, because of reduced draft quotas and the random selection system of draft calls. As in past years, graduates of ECPD schools were about twice as likely to go on to four-year colleges as those from non-ECPD institutions.

TABLE 11

Placement Status of Two-Year Technology Graduates - 1972

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	4657	58	1859	48	2798	66
Full-Time Study	1952	24	1331	35	621	15
Military Service	255	3	124	3	131	3
Other Specific Plans	168	2	73	2	95	2
Graduates Committed (Total of Above)	7032	87	3387	88	3645	87
Considering Job Offers	697	9	291	8	406	10
No Offers or Plans	332	4	174	5	158	4
Total with Status Known	8061	100	3852	100	4209	100
No Information	1485	--	945	--	540	--
Total Reported	9546	--	4797	--	4749	--

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

The breakdown by curricula, Table 12, shows the highest percentages of uncommitted graduates in the aerospace, electrical,

TABLE 12

Placement Status of Technology Graduates by Curriculum - 1972

Associate Degree Programs

Placement Status	Aero	Air Cond.	Auto	Chem.	Civil	Computer	Drafting
Employed	50%	84%	70%	55%	54%	59%	65%
Full-Time Study	27	9	10	28	28	19	18
Military Service	2	3	3	2	3	2	2
Other Specific Plans	0	*	14	2	1	3	2
Graduates Committed (Total of Above)	80	96	96	86	87	83	88
Considering Job Offers	13	4	3	8	8	11	10
No Offers or Plans	7	0	*	6	5	7	2

Placement Status	Electrical	Electronics	Indust.	Mfg.	Mech.	Met.	Other	Total
Employed	52%	57%	45%	76%	54%	54%	63%	58%
Full-Time Study	26	24	41	14	30	27	24	24
Military Service	4	4	9	*	3	4	2	3
Other Specific Plans	1	2	1	*	2	0	1	2
Graduates Committed (Total of Above)	82	88	95	91	88	85	90	87
Considering Job Offers	13	8	4	5	8	12	8	9
No Offers or Plans	5	4	1	4	4	2	2	4

*Less than 1%

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

computer, metallurgical, and chemical technologies. These findings are generally consistent with those in the engineering section of the survey. Graduates of the industrial curricula, as last year, showed the highest percentage going on to full-time study and the lowest entering employment, while air conditioning technology was at the other extreme. It should be noted that each curriculum designation includes a wide variety of programs ranging from fully accredited engineering technology through pre-college oriented programs to curricula with a heavy concentration of vocational or skill courses. Thus the variations from year to year or among curricula represent relative comparisons only and should not be assumed to have precise numerical significance.

Table 13 lists the average salary offers received by technology graduates, broken down according to curriculum and ECPD recognition of the school. The "Avg. Low" and "Avg. High" figures are simply the arithmetical averages of the highs and lows reported by each school, and as such indicate rough upper and lower limits on the range of salaries offered. The overall mean salary offered in 1972 was $607 per month, which is intermediate between $647 for graduates of ECPD schools and $572 for others. Compared to 1971 the mean for ECPD schools increased by $10 per month or about 1.6 percent. The overall mean, however, decreased because of the much larger representation of non-ECPD schools in this year's survey and the lower salaries reported by those schools. The great majority of salary offers fell within the range of $509 to $735 per month, but there were many outside the range in both directions.

Generally speaking, the best paid curricula were manufacturing, materials, and mechanical technology, with industrial, chemical, and electronics also rating high. It will be noted that rather wide differences exist between curricula in the ECPD versus the non-ECPD columns. This, of course, reflects the great variety in the quality of programs offered under similar sounding names. Therefore the salary experiences of individual schools are better guides for their own graduates than the average figures cited in this report.

TABLE 13

Monthly Starting Salaries of 1972 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	7	45	--	$495	$602	$724	$844
Air Conditioning	13	84	470	519	556	675	696
Architectural	21	214	484	569	583	615	699
Automotive	9	60	429	598	596	578	655
Chemical	20	107	534	583	625	652	784
Civil	45	446	514	587	616	633	758
Computer	31	278	457	533	563	613	729
Drafting	35	260	472	533	546	615	640
Electrical	37	374	527	560	610	646	756
Electro-Mechanical	4	23	528	599	608	629	694
Electronics	60	731	517	588	621	671	760
Environmental	4	37	527	561	598	616	661
Industrial	10	79	507	NA	633	633	802
Instrumentation	6	16	--	491	603	714	678
Manufacturing	11	81	568	653	674	688	751
Materials	4	13	519	618	653	664	679
Mechanical	52	377	540	605	637	657	744
Other	10	43	555	670	648	577	768
All Curricula	126	3268	509	572	607	647	735

*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 21 ECPD schools and 18 others in the total of 39 included in this table.

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

BACHELOR'S DEGREE GRADUATES IN TECHNOLOGY

The number of schools offering four-year degrees designated as bachelor of engineering technology, bachelor of industrial technology, or simply as bachelor of science in some field of technology, continues to increase, and so does the number of graduates. The number reported in this survey, 2106, is nearly double the total reported last year. Their placement status is not drastically different compared with previous years or with bachelor's degree engineering graduates except that only five percent of the technologists were continuing on to advanced study and only seven percent had no offers or plans. Table 14 gives the figures for previous years.

TABLE 14

Placement Status of Bachelor's Degree Technology Graduates

1972 Compared with Previous Years

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

The breakdown by curricula, Table 15, shows few deviations from the general pattern. More graduates from industrial or related curricula were going into further study, while electrical and mechanical graduates were slightly less likely to have made firm commitments.

TABLE 15

Placement Status of Technology Graduates by Curriculum - 1972

Bachelor's Degree Programs

Placement Status	Civil	Elec.	Indust.	Mech.	Other	Total
Employed	73%	65%	67%	65%	72%	67%
Full-Time Study	3	2	9	3	4	5
Military Service	5	9	7	5	2	7
Other Specific Plans	1	2	1	*	6	2
Graduates Committed (Total of Above)	82	78	84	74	83	81
Considering Job Offers	11	11	12	15	6	12
No Offers or Plans	7	11	4	11	10	7

*Less than 1%

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

The statistics by ECPD status, Table 16, indicate that students from the ECPD schools are less likely to have already accepted employment and more apt to be still considering job offers, while more of the non-ECPD graduates were without job offers or other plans. In both groups about the same percentages were continuing full-time study.

TABLE 16

Placement Status of Bachelor's Degree Technology Graduates - 1972

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	1125	67	385	62	740	71
Full-Time Study	90	5	29	5	61	6
Military Service	110	7	54	9	56	5
Other Specific Plans	29	2	5	*	24	2
Graduates Committed (Total of Above)	1354	81	473	76	881	84
Considering Job Offers	198	12	114	18	84	8
No Offers or Plans	117	7	34	5	83	8
Total with Status Known	1669	100	621	100	1048	100
No Information	437	--	305	--	132	--
Total Reported	2106	--	926	--	1180	--

*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 at the bachelor's degree level accredited by ECPD.

Salaries offered to BT graduates again tended to be closer to those for engineers than to those for technicians, with an overall average of $825 per month reported this year. Interestingly enough, the averages for non-ECPD schools were higher than the ECPD group in the civil, electrical, and industrial categories as well as in the combined totals. The total of 1041 salaries included in the statistics is more than twice as many as last year with the greatest increase in the industrial curriculum. The average salary increased by $15 per month or about two percent over last year. The cautions about variability in programs and ranges between high and low salary offers, as pointed out earlier, also apply to the bachelor of technology statistics. From all indications, however, these graduates are equally in demand along with engineers at the bachelor's level and are being hired at salaries not much lower than engineers'.

TABLE 17

Monthly Starting Salaries of 1972 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***
Civil	8	139	$647	$805	$796	$779	$962
Electrical	14	160	709	868	847	820	956
Industrial	21	537	627	832	826	783	997
Mechanical	13	124	724	828	838	849	992
Other	8	81	701	795	800	810	931
All Curricula	29	1041	680	832	825	806	969

*Mean of the lowest figures reported by responding schools.

** ECPD schools are those having at least one engineering technology curriculum accredited at the bachelor's level by ECPD. Specific curricula for these schools may or may not be accredited. There were 7 ECPD schools and 22 others in the total of 29 included in this table.

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

"NO INFORMATION" REPORTS

As usual, the EMC survey received many returns in which the placement office reported having no information about many graduates. Since these introduce a degree of uncertainty into the statistical analysis, this year's respondents were asked explicitly to express their judgment as to the probable status of the "no information" group. The results were quite gratifying, as they produced widespread support for the conclusion that most of these students already had jobs or other plans and simply did not need or want placement office help. The estimated distribution of these "no information" students as averaged from 62 usable replies was about 31 percent already employed, 36 percent with other firm plans, 15 percent foreign nationals, 14 percent not interested in starting work, and 5 percent miscellaneous reasons. These figures provide assurance that there are no serious distortions in the statistics used for the EMC placement report. Certainly there is no evidence that significant numbers of unsuccessful job seekers are concealed in the "no information" group.

Schools reporting very high percentages of "no information" were excluded from the statistical tabulations in order to reduce the degree of uncertainty. Data from a few military and other schools were not included because of the untypical placement pattern of their graduates.

Table 18 gives the "no information" statistics for this year. Regrettably, the percentages continue to increase in most categories, so that we now are receiving definite placement information on only four out of five graduates. For some reason the non-ECPD schools consistently report more completely than their ECPD counterparts. Perhaps this is because so many more of the non-ECPD graduates are seeking actual employment, where placement office assistance is important, while the ECPD schools send more students on to graduate school. In any event the continued absence of specific placement information is a loss to all concerned, and it would be helpful if more educational institutions would follow the example of those schools that regularly obtain data on all of their graduates as a matter of policy.

TABLE 18

Analysis of "No Information" Reports

	Total Graduates Reported
Engineering Degrees, BS	24359
ECPD Schools	23581
Other Schools	778
Engineering Degrees, MS	6361
Engineering Degrees, PhD	1404
Technology Degrees, BS	2106
ECPD Schools	926
Other Schools	1180
Technology Degrees, AS	9546
ECPD Schools	4797
Other Schools	4749

ENGINEERING DEGREES
1971-72

According to this year's survey by the Engineering Manpower Commission of Engineers Joint Council, there were 44,190 bachelor's degrees in engineering earned in the school year ending in June 1972. Surprisingly, this was somewhat more than had been predicted on the basis of senior enrollments in fall 1971.

The numbers of advanced degrees reported this year were 17,003 master's, 353 engineer degrees, and 3,774 doctorate degrees. All totaled, this represents a combined increase of 1,107 over last year's graduate degrees.

For the 1971-72 survey, replies were received from 284 institutions. Bachelor's degrees were reported from 280 schools, master's from 207, engineer degrees from 21, and doctor's from 134. Four schools reported granting only advanced degrees --- Rensselaer Polytechnic Institute at Hartford, Connecticut; University of North Carolina at Chapel Hill; the Institute of Textile Technology; and the Institute of Paper Chemistry. This year 216 schools had at least one curriculum accredited by the Engineers' Council for Professional Development as indicated in their 1971 Annual Report, but at five of these schools only master's degree curricula were accredited (Cornell University, University of Louisville, University of North Carolina at Chapel Hill, Rensselaer Polytechnic Institute at Troy, New York, and Rice University).

The following schools were added to the survey since 1971:

University of Alabama, Birmingham	Alabama
University of South Alabama	Alabama
Arkansas Polytechnic Institute	Arkansas
Loyola College	Maryland
Andrews University	Michigan
Marietta College	Ohio
Hampton Institute	Virginia
Washington & Lee University	Virginia

This year there were also several changes in names of reporting institutions:

OLD	NEW
Cal St Poly Kellogg	Cal St Poly U-Pomona
Chico St Coll	Cal St U-Chico
Fresno St Coll	Cal St U-Fresno
Cal St Coll Fullerton	Cal St U-Fullerton
Humboldt St Coll	Cal St U-Humboldt
Cal St Coll Long Beach	Cal St U-Long Beach
Cal St Coll Los Angeles	Cal St U-Los Angeles
San Fernando Val St Coll	Cal St U-Northridge
San Diego St Coll	Cal St U-San Diego
San Francisco St Coll	Cal St U-San Francisco
San Jose St Coll	Cal St U-San Jose
SUNY Coll Ceramics Alfred	N Y St Coll of Ceramics
PMC Colleges	Widener College
Wisconsin St U	U of Wisconsin-Platville

Table A provides a historical summary of the degrees awarded from 1949 to date. Data for 1949 through 1967 were provided from the U. S. Office of Education's annual reports and figures from 1968 to the present were compiled by the Engineering Manpower Commission. The two series differ somewhat in survey methodology and criteria for determining what are "engineering" degrees, but apparently these differences do not appear to be important in terms of the total numbers of degrees. The EMC survey asks for engineering degrees only and requests that the data be verified by both the dean of engineering and the registrar of the reporting institution.

Table B gives the breakdown by curriculum and degree level for 22 curricula and a small catch-all category of "other." For a complete breakdown of the "other" group, see the notes after Table F.

The number of degrees are broken down by school, curriculum, and degree levels in Tables C through F.

This year there were fifteen schools that granted 500 or more bachelor's degrees:

Purdue U	972
U of Illinois-Urbana	733
Georgia Inst of Tech	727
Northeastern U	727
U of Michigan	726
U of Missouri-Rolla	716
Pennsylvania St U	687
Newark Coll of Engrg	681
Iowa St U	607
North Carolina St U	607
U of Minnesota	589
U of Washington	588
Ohio St U	558
Texas A & M U	512
Virginia Poly Inst	512

Similarly, the following schools reported 300 or more master's degrees this year:

Stanford U	686
U of Calif-Berkeley	491
New York U	404
M I T	397
U of Illinois-Urbana	365
U of Missouri-Rolla	359
U of Michigan	349
Purdue U	338
Poly Inst of Brooklyn	334
Northeastern U	321
U of Southern Calif	302

M I T was the only school to award more than 100 engineer degrees. The actual number was 114 degrees for 1972.

100 or more doctorates were produced at the following schools:

Stanford U	187
U of Calif-Berkeley	186
M I T	162
U of Illinois-Urbana	118
U of Michigan	108
Purdue U	108

With most of the engineering schools having at least one curriculum accredited by ECPD, it is not surprising that only about 8% of the degrees were granted by non-accredited institutions. Out of the 44,190 bachelor's degrees this year, only 3,351 were from non-ECPD schools.

This year, as in the past, schools were asked to report the total numbers of degrees earned by women, foreign nationals, and U. S. Negroes. Many schools are still unable to provide a breakdown of these figures, but the totals listed below provide a strong indication of the actual numbers involved.

	Bachelor's	Master's	Engineer	Doctors
Women	493	269	2	27
U. S. Negroes	405	44	0	6
Foreign Nationals	1,944	2,939	34	773

Table A

ENGINEERING DEGREES, ALL U. S. INSTITUTIONS, 1949-72[1]

Year Ended June 30	Bachelor's[2]	Master's[3]	Doctor's
1972	44,190	17,356	3,774
1971	43,167	16,383	3,640
1970	42,966	15,548	3,620
1969	39,972	14,980	3,345
1968	38,002	15,152	2,933
1967	36,186	13,887	2,614
1966	35,815	13,677	2,303
1965	36,691	12,056	2,124
1964	35,226	10,827	1,693
1963	33,458	9,635	1,378
1962	34,735	8,909	1,207
1961	35,860	8,177	943
1960	37,808	7,159	786
1959	38,134	6,753	714
1958	35,332	5,788	647
1957	31,211	5,232	596
1956	26,306	4,724	610
1955	22,589	4,484	599
1954	22,236	4,177	590
1953	24,164	3,743	592
1952	30,286	4,141	586
1951	41,893	5,156	586
1950	52,732	4,904	494
1949	45,200	4,798	417

1 Data since 1968 from Engineering Manpower Commission; for earlier years, from U. S. Office of Education.

2 Includes four-year and five-year curricula.

3 Includes other post-baccalaureate, pre-doctoral degrees: 508 in 1970, 494 in 1971, 353 in 1972.

Table B

ENGINEERING DEGREES BY CURRICULUM AND DEGREE LEVEL
FOR ALL U.S. ENGINEERING SCHOOLS
1971-72

Curriculum	Bachelor's	Master's	Engineer	Doctor's
Aerospace	2,018	671	33	205
Agricultural	394	166	0	64
Architectural	380	8	0	0
Biomedical	84	78	0	38
Ceramic	202	60	3	25
Chemical	3,600	1,158	14	413
Civil	6,982	2,507	51	438
Computer	359	627	0	83
Electrical	12,430	4,211	141	850
Engineering, General	1,903	324	0	29
Engineering Mechanics	245	275	3	174
Engineering Physics	290	79	6	24
Engineering Science	884	416	0	123
Environmental	77	376	1	56
Geological	177	87	0	48
Industrial	3,159	1,796	23	189
Manufacturing	48	28	0	0
Marine	455	109	20	17
Materials	112	125	3	83
Mechanical	8,642	2,312	44	458
Metallurgical	590	311	3	163
Mining	194	69	0	20
Nuclear	291	574	7	124
Petroleum	307	86	1	21
Systems	133	497	0	87
Textile	27	18	0	1
Transportation	5	110	0	10
Welding	20	9	0	0
Other	182	116	0	31
TOTAL	44,190	17,003	353	3,774

TABLE C

BACHELORS DEGREE

	AEROSPACE	AGRICULTURAL	BIOMEDICAL	CHEMICAL	CIVIL	COMPUTER	ELECTRICAL	ENGINEERING, GENERAL	ENGINEERING MECHANICS	ENGINEERING PHYSICS	ENGINEERING SCIENCE	ENVIRONMENTAL	GEOLOGICAL	INDUSTRIAL	MARINE	MATERIALS	MECHANICAL	METALLURGICAL	MINING	NUCLEAR	PETROLEUM	SYSTEMS	ALL OTHER ENGINEERING	TOTAL ENGINEERING	WOMEN	U.S. NEGRO	FOREIGN
ALABAMA																											
Auburn U	41	5		34	64		156							57		8	68						3	436	0	0	5
Tuskegee Inst							20										16							36	2	29	5
U of Alabama-Birmingham								36																36	0	2	0
#U of Alabama-Huntsville								25																25	0	0	0
U of Alabama-University	16			12	20		34							30			32	10	9					163	3	1	1
U of South Alabama				3	11		19										9							42	0	0	1
ALASKA																											
U of Alaska					14		11						1				2		9					37	NA	NA	NA
ARIZONA																											
Arizona St U				16	37		66		2		40			2			44							207	6	NA	NA
U of Arizona	11	2		15	31		49			4	17		5				49	7	10	8		2		210	6	NA	13
ARKANSAS																											
#Arkansas Poly Coll								4																4	0	0	0
#Arkansas St U		5																						5	0	0	0
#John Brown U					3		4										3							10	0	0	0
U of Arkansas		6		23	38		68				1			33			37							206	0	6	3
CALIFORNIA																											
Calif Inst of Tech				5							35													40	NA	NA	4
#Calif Maritime Acad															35									35	0	0	0
Cal St Poly U-Pomona	44			17	47		136							37			48							329	4	3e	64
Cal St Poly U-San Luis Ob	42	16			9		125					20		23			87	8					39	369	1	NA	68
Cal St U-Chico					30		16				8						3							57	0	0	10
Cal St U-Fresno					29		35							3			16							83	NA	NA	NA
#Cal St U-Fullerton								38																38	1	1	8
#Cal St U-Humboldt					10						3	1												14	0	0	0
Cal St U-Long Beach				12	50		70							12	2	2	42							190	NA	NA	NA
Cal St U-Los Angeles								154																154	2	4	NA
Cal St U-Northridge								72																72	0	0	0
Cal St U-San Diego								108																108	1	NA	NA
#Cal St U-San Francisco					10		15										15							40	1	1	14
Cal St U-San Jose				7	38		89	10						23		11	38							216	NA	NA	NA
Harvey Mudd Coll								57																57	NA	NA	NA
#Heald Engineering Coll					41		68										41						4	154	1	NA	60
Loyola U of Los Angeles					18		9										12							39	0	0	2
#Northrop Inst of Tech	37						65	5									19							126	2	NA	NA
Sacramento St Coll					28		45										12							85	NA	NA	NA
#San Diego Coll of Engrg							8																	8	NA	NA	NA
Stanford U				6	23		30	19					7	15			21				1			122	6	0	5
U.S. Naval Post-Grad Sch	11						47				47						7							112	0	0	18
U of Calif-Berkeley				41	71		211			9	16			22			69	1						440	7	5	69
U of Calif-Davis	7	8		18	58		53									3	41						1	189	3	1	9
U of Calif-Irvine					12		26	1																39	1	1	1
U of Calif-Los Angeles								294																294	7	NA	NA
#U of Calif-San Diego			2				38		14	11														65	10	0	NA
U of Calif-Santa Barbara				8			52										38			9				107	1	3	9
U of the Pacific				7			7																	14	0	0	3
#U of Redlands								5																5	0	0	1
U of Santa Clara					22		26	2									10							60	2	NA	NA
U of Southern Calif	13			17	21		43		11					7			15				3			130	1	NA	NA
#West Coast U						18	122			6	3						29							178	NA	NA	NA
#Western States Coll							29																	29	0	0	4
COLORADO																											
Colorado Sch of Mines				41						12	34		55					48	23		20			233	4	0	16
Colorado St U		9			44		39				11						23							126	1	0	2
U.S. Air Force Acad	41				44		16		65		25													191	NA	NA	NA
U of Colorado	56			31	45	6	126	12		10	21						44						15	366	9	NA	NA
U of Denver				3	10		16							3			7							39	0	0	1
CONNECTICUT																											
#Bridgeport Engrg Inst							24										34							58	0	1	0
#Trinity Coll								11																11	0	0	0
#U.S. Coast Guard Acad								41							3									44	NA	NA	NA
U of Bridgeport							21										12						5	38	0	0	2
U of Connecticut		5		13	35	13	44										42							152	4	2	4
U of Hartford							38										40							78	0	0	4
U of New Haven					15		50							20		8	42							135	1	0	10
#Yale U											25													25	0	NA	6

BACHELORS DEGREE	AEROSPACE	AGRICULTURAL	BIOMEDICAL	CHEMICAL	CIVIL	COMPUTER	ELECTRICAL	ENGINEERING, GENERAL	ENGINEERING MECHANICS	ENGINEERING PHYSICS	ENGINEERING SCIENCE	ENVIRONMENTAL	GEOLOGICAL	INDUSTRIAL	MARINE	MATERIALS	MECHANICAL	METALLURGICAL	MINING	NUCLEAR	PETROLEUM	SYSTEMS	ALL OTHER ENGINEERING	TOTAL ENGINEERING	WOMEN	U.S. NEGRO	FOREIGN
DELAWARE																											
U of Delaware				30	27		34							30			35							156	2	NA	7
DISTRICT OF COLUMBIA																											
Catholic U of America	8			4	4		10										10							36	2	0	5
George Washington U					5		11										6							22	0	NA	0
Howard U				5	28		42										28							103	2	48e	55
FLORIDA																											
#Embry-Riddle Aero U	25																							25	NA	NA	NA
#Florida Atlantic U							1								58									59	5	0	1
Florida Inst of Tech	16						52																	68	0	NA	NA
#Florida St U											25													25	NA	NA	NA
#Florida Tech U							23					4		11		7	14							59	1	0	2
U of Florida	20	3		16	47	1	111				20			43			60	[illegible]		11				340	2	1	10
U of Miami					12		55				1			15			19							104	5	NA	NA
#U of South Florida				6			45				30			17			19						2	117	2	0	NA
GEORGIA																											
Georgia Inst of Tech	76			74	94		151				5			194			118						15	727	4	2	NA
U of Georgia		19																						19	0	0	0
HAWAII																											
U of Hawaii					50		90	5									26							171	0	NA	NA
IDAHO																											
#Idaho St U								22																22	0	0	2
U of Idaho		9		15	42		31						3				23	2	3					128	1	0	5
ILLINOIS																											
#Aero-Space Inst	22																							22	2	4	11
Bradley U					17		26							30			22							95	NA	NA	NA
#Chicago Tech Coll					22		68										54						30	174	0	19	67
Illinois Inst of Tech				40	37		119				4			23			76	10					9	318	3	NA	42
#Midwest Coll of Engrg							6																	6	0	0	0
#Millikin U														21									1	22	0	0	0
Northwestern U			3	20	12	3	38				16			34		3	18							147	NA	NA	NA
#Parks Coll	100																							100	0	2	5
Southern Illinois U								48																48	0	1	7
#U of Illinois-Chicago	22		12	14	17	34	101		11	2		7		27			32		20			2	14	315	3	NA	NA
U of Illinois-Urbana	71	21		26	142	24	177	57	12	24				34			115	16					14	733	7	2	4
INDIANA																											
#Indiana Inst of Tech	2			20	23		22										31							98	0	0	20
Purdue U	117	12		97	120		241	43			27			107			188	20						972	7	7	19
Rose-Hulman Inst Tech	9		8	22	18		18										51							126	NA	NA	1
Tri-State Coll	17			22	46		41										75							201	0	0	26
U of Evansville							17							5			13							35	1	0	0
U of Notre Dame	31			32	35		39				4						41	4						186	0	0	5
Valparaiso U					23		24										26							73	1	0	1
IOWA																											
Iowa St U	63	22		40	103		111				11			94			62	7					94	607	6	1	11
U of Iowa				7	24		30	1						12			24							98	2	1	3
KANSAS																											
Kansas St U		11		19	39		68							23			65			17				242	1	0	3
U of Kansas	39			26	52		57			6				13			18				4		8	223	3	4	11
Wichita St U	27						34							9			26							96	1	1	3
KENTUCKY																											
U of Kentucky		10		20	65		59										42	5						201	1	1e	6
U of Louisville				12	12		9										14							47	NA	NA	NA
LOUISIANA																											
L S U - Baton Rouge	8	5		60	34		77				2			29			39				30		2	286	3	1	45
#L S U - New Orleans							18				15						13							46	3	2	0
Louisiana Tech U		3		32	25		38							6			42				12			158	0	1	1
#McNeese St U				6	2		9										5							22	0	0	0

BACHELORS DEGREE	AEROSPACE	AGRICULTURAL	BIOMEDICAL	CHEMICAL	CIVIL	COMPUTER	ELECTRICAL	ENGINEERING, GENERAL	ENGINEERING MECHANICS	ENGINEERING PHYSICS	ENGINEERING SCIENCE	ENVIRONMENTAL	GEOLOGICAL	INDUSTRIAL	MARINE	MATERIALS	MECHANICAL	METALLURGICAL	MINING	NUCLEAR	PETROLEUM	SYSTEMS	ALL OTHER ENGINEERING	TOTAL ENGINEERING	WOMEN	U.S. NEGRO	FOREIGN
LOUISIANA (cont.)																											
Southern U					7		14										9							[illegible]	NA	NA	NA
Tulane U				14	21		12										25						20	[illegible]	2	2	2
U of SW Louisiana				10	26		20										24				14			[illegible]	2	0	6
MAINE																											
#Maine Maritime Acad															68									[illegible]	NA	NA	NA
U of Maine		3		21	41		41			9							29							[illegible]	1	NA	NA
MARYLAND																											
Johns Hopkins U					15		55		10	1	9			29			40							[illegible]	0	0	1
#Loyola Coll										11														[illegible]	NA	NA	NA
U.S. Naval Acad	53						26								41		45					17		[illegible]	0	4	1
U of Maryland	25	4		23	52		137	7									61							[illegible]	0	8	12
MASSACHUSETTS																											
Boston U	18		8																			7	[illegible]	[illegible]	3	2	3
Harvard U								24																[illegible]	NA	NA	NA
Lowell Tech Inst				20	63		94										49			37			2	265	5	1	11
M I T	46			28	40		218								4		50	21						[illegible]	21	NA	NA
#Mass Maritime Acad															40									40	NA	NA	NA
Merrimack Coll					13		12																	25	0	0	0
Northeastern U				66	152		307							66			136							727	11	NA	22
SE Massachusetts U					17		29							13			19							78	0	0	1
Tufts U				29	39		35	19			3						31							156	22	9	26
U of Massachusetts	11			13	58		31							20			33							166	NA	NA	NA
Western New England Coll							30							27			28							85	0	0	1
Worchester Poly Inst				21	44		53							28			56							[illegible]	NA	NA	3
MICHIGAN																											
#Andrews U											2													[illegible]	NA	NA	NA
#Detroit Inst of Tech					24		42										47							[illegible]	NA	NA	NA
#General Motors Inst							44e							150e			180e							[illegible]	0	2	0
#Lawrence Inst of Tech					6		43										55							[illegible]	1	2	NA
Michigan St U		9		32	67	58	77		3							2	98	10				10		[illegible]	9	2	10
Michigan Tech U	c			39	114		103	1					4				140	47	12					[illegible]	3	2	44
Oakland U								70																[illegible]	4	0	3
U of Detroit				16	26		67	5									59							[illegible]	0	4	6
U of Michigan	96			50	55		128	3	6	8	36			100	50	3	127	10		16			[illegible]	[illegible]	15	NA	NA
Wayne St U				21	29		65							15			49	7						[illegible]	4	4	20
#Western Michigan U														29										[illegible]	NA	NA	NA
MINNESOTA																											
U of Minnesota	51	17		40	91	23	185						6				170	4	2					[illegible]	NA	NA	NA
MISSISSIPPI																											
Mississippi St U	16	5	4	25	47		58							21		2	37			9	10			234	3	1	10
U of Mississippi				21	13		12						2				11							59	0	1	4
MISSOURI																											
#Rockhurst Coll											9													9	0	0	0
U of Missouri-Columbia		15		34	60		106							34			73							322	2	0	0
#U of Missouri-Kansas City								9																9	0	NA	0
U of Missouri-Rolla	20			53	173		143						11	77			175	27	19		12		6	716	3	NA	NA
Washington U				13	10	23	46			9							9							110	7	2	9
MONTANA																											
Mont Mineral Sci & Tech											7		9					2	10		10			[illegible]	NA	NA	NA
Montana St U		4		45	53		42							8			34							[illegible]	NA	NA	NA
NEBRASKA																											
U of Nebraska-Lincoln		13		17	65	16	106							7			72							296	2	NA	23e
U of Nebraska-Omaha					18			9						8										35	0	0	1
NEVADA																											
#U of Nevada-Las Vegas								8																[illegible]	1	0	0
U of Nevada-Reno				1	17		16				4		4				15	4	6					[illegible]	NA	NA	NA

BACHELORS DEGREE	AEROSPACE	AGRICULTURAL	BIOMEDICAL	CHEMICAL	CIVIL	COMPUTER	ELECTRICAL	ENGINEERING, GENERAL	ENGINEERING MECHANICS	ENGINEERING PHYSICS	ENGINEERING SCIENCE	ENVIRONMENTAL	GEOLOGICAL	INDUSTRIAL	MARINE	MATERIALS	MECHANICAL	METALLURGICAL	MINING	NUCLEAR	PETROLEUM	SYSTEMS	ALL OTHER ENGINEERING	TOTAL ENGINEERING	WOMEN	U.S. NEGRO	FOREIGN
NEW HAMPSHIRE																											
Dartmouth Coll								20																20	0	0	0
#New England Coll					7									3										10	1	NA	NA
U of New Hampshire				13	18		37										40							108	NA	NA	33
NEW JERSEY																											
Fairleigh Dickinson U				11		1	101			9	15			51			49							237	NA	NA	NA
Monmouth Coll							34																	34	0	0	0
Newark Coll of Engrg				65	122		179				48			93			174							681	14	6	19
Princeton U	21			13	22		33	15																104	0	NA	11
Rutgers U		3		21	30		49							22			46						20	191	2	NA	NA
Stevens Inst of Tech								228																228	0	0	14
NEW MEXICO																											
N M Inst Mining & Tech			10	7		7				10	29	2	12					5	10		8		1	101	NA	NA	NA
New Mexico St U		8		23	43		73							21			55							223	0	0	13
U of New Mexico				15	26		57										38							136	0	1	6
NEW YORK																											
City Coll of CUNY				50	54		239										82							425	5	25e	20e
Clarkson Coll of Tech				61	96		63										79							299	2	NA	3
Columbia U				26	34		33							17			18	4	10	6				148	7	NA	NA
Cooper Union				12	13		19										20							64	0	1	4
Cornell U		6		42	71		117	40		39				95		4	44							458	3	5	12
Hofstra U							14		5		16			8										43	0	0	0
Manhattan Coll				45	95		64										31							235	0	NA	3
N Y St Coll of Ceramics																							68	68	1	1	3
New York U	19			15	34		98			4	6			33			24			8			12	253	9	NA	NA
Poly Inst of Brooklyn	48			25	50		157										35	13				35		363	1	8	7
#Post Coll of L I U											46													46	NA	NA	NA
Pratt Inst				14		15	57				15			15			27							143	7	NA	NA
R P I	15		14	35	47		117		1		21	39		41		20	91			19				460	5	4	8
Rochester Inst of Tech							50							2			69							121	2	1	0
SUNY Buffalo	6			13	64	9	88	18			17			45			42							302	7	2	20
#SUNY Maritime Coll							5								24									29	0	0	0
SUNY Stony Brook								80																80	NA	NA	NA
Syracuse U	18			11	36		24							9			25							123	0	NA	NA
Union Coll					16		39										23							78	1	7	9
#U.S.Merchant Marine Acad															102									102	0	0	1
U of Rochester				9			22				1						7						3	42	0	0	4
Webb Inst of Naval Arch															19									19	0	0	0
NORTH CAROLINA																											
Duke U			7		14		24										26							71	1	1	2
North Carolina A & T St U							10			1							12						3	26	1	0	1
North Carolina St U	30	11		28	113		101	91	3					66		14	93			27			30	607	3	0	8
#U of N C-Charlotte					6		17										12							35	0	0	1
NORTH DAKOTA																											
North Dakota St U		14			35		53							17			41						2	162	0	0	1
U of North Dakota				14	19		26						1	14			15							89	0	0	15
OHIO																											
Air Force Inst of Tech							23																	23	0	NA	0
Case Western Reserve U				23	16	18	51	21	31									20				15		195	NA	NA	NA
Cleveland St U				12	12		47	40			7			9			37	8						172	0	1	1
#Marietta Coll																					15			15	0	1	0
Ohio Northern U					16		19										14							49	0	0	0
Ohio St U	61	10		52	78	52	98			13				53			97	21					23	558	9	NA	20
Ohio U				30	25		56							17			28							156	0	0	31
U of Akron				21	19		45										33							118	0	1	4
U of Cincinnati	41			40	38		61										90	14						284	1	0	1
U of Dayton				17	34		45							23			41							160	0	1	11
U of Toledo				19	20		28			7				12			37							123	0	2	7
#Wright St U										1												34		35	1	0	1
Youngstown U				32	26		41							26			34	10						169	NA	NA	NA
OKLAHOMA																											
Oklahoma St U	18	13		47	21		77	4						41			53						5	279	4	1	27
U of Oklahoma	17			29	20		40			12	4		5	18			29	5		4	19		13	215	4	0	20
U of Tulsa	5			32			11			3	7		7				25				31			121	2	1	32

Table C (continued)

BACHELORS DEGREE	AEROSPACE	AGRICULTURAL	BIOMEDICAL	CHEMICAL	CIVIL	COMPUTER	ELECTRICAL	ENGINEERING, GENERAL	ENGINEERING MECHANICS	ENGINEERING PHYSICS	ENGINEERING SCIENCE	ENVIRONMENTAL	GEOLOGICAL	INDUSTRIAL	MARINE	MATERIALS	MECHANICAL	METALLURGICAL	MINING	NUCLEAR	PETROLEUM	SYSTEMS	ALL OTHER ENGINEERING	TOTAL ENGINEERING	WOMEN	U.S. NEGRO	FOREIGN
OREGON																											
Oregon St U		2		37	48		61	22		7				25			64	2		12				280	1	0	31
#U of Portland							3	6	2		3													14	0	0	5e
PENNSYLVANIA																											
Bucknell U				13	19		19										18							69	2	1	0
Carnegie Mellon U				31	22		74										46	15						188	6	0	5
Drexel U				57	61		171							14			117	18						438	4	5e	7e
Gannon Coll							25										17							42	0	0	0
#Geneva Coll					2			9						3										14	1	0	1
#Grove City Coll				10			13										6	12						41	0	0	1
Lafayette Coll				19	19		30										30	24						122	0	1	4
Lehigh U				45	45		62		4	12				46			53	15						282	0	1	5
Pennsylvania St U	43	8		46	86		167		37		10			79			110	16	12	12	16		45	687	1	NA	NA
#Phil Coll of Textiles																							17	17	2	NA	NA
Swarthmore Coll								13																13	2	0	2
U of Pennsylvania				20	9		30										28	2						89	1	1	7
U of Pittsburgh	17			39	79		107							41			101	21			6			411	3	3	12
Villanova U				18	45		60										57							180	2	0	7
Widener Coll								40																40	0	0	3
RHODE ISLAND																											
Brown U	1		1		6		18					1				10	14						12	63	2	2	3
U of Rhode Island				12	33		45				3			32			23							148	2	NA	6
SOUTH CAROLINA																											
The Citadel					17		18																	35	0	0	0
Clemson U		3		29	51		58	2									42	2					10	197	3	NA	2
U of South Carolina				9	18		37										24						4	92	0	2	1
SOUTH DAKOTA																											
S D Sch of Mines & Tech				20	32		33						13				42	10	8					158	3	NA	22
South Dakota St U		9			50		38			11							29							137	0	0	1
TENNESSEE																											
Christian Brothers Coll				13	5		28										15							61	0	4	4
Memphis St U					11		39						3				14							67	1	NA	4
#Tennessee St U					1		11										6						4	22	2	20	0
Tennessee Tech U				11	37		38				24			29			54							193	4	0	20
#U of Tenn-Chattanooga										4	6			15										25	0	0	0
U of Tenn-Knoxville	15	8		61	55		110			19	8			53			73	7		25				434	7	NA	NA
Vanderbilt U			8	9	31	23	20		2		27					5	25							150	13	3	3
TEXAS																											
Lamar U				25	12		28							12			37							114	6	5	4
#LeTourneau Coll	7						7							7			10						7	38	0	0	0
Prairie View A & M U					9		27										17						14	67	0	67	0
Rice U				18			33					3					13							67	1	0	1
#St. Mary's U														10										10	NA	NA	4
Southern Methodist U					7		16							2			20					11		56	1	0	2
Texas A & I U				19			31	29													16			95	NA	NA	76
Texas A & M U	63	23		55	87		78						2	43	9		109			20	23			512	2	NA	NA
Texas Tech U		11		22	46		50			11				36			52				9			237	1	0	15
Trinity U					12						8													20	1	0	1
U of Houston				27	41		70							26			60							224	0	NA	NA
U of Texas-Arlington	30				29		109							22			57							247	NA	NA	18
U of Texas-Austin	52			56	39		114				14						121				22		29	447	6	NA	NA
U of Texas-El Paso					26		49										40	15						130	0	NA	33
UTAH																											
Brigham Young U				23	33		74										44							174	NA	NA	NA
U of Utah				25	32	4	57						27			4	47	15					27	238	NA	NA	NA
Utah St U					32		26										31						10	99	0	0	18
VERMONT																											
Norwich U					16		5							4			11							36	0	0	0
U of Vermont					25		14										28						6	73	1	0	1
VIRGINIA																											
#Hampton Inst					3		8							1			1							13	1	10	3
U of Virginia	29			15	27		50				13						23			32				189	1	0	1

Table C (continued)

BACHELORS DEGREE	AEROSPACE	AGRICULTURAL	BIOMEDICAL	CHEMICAL	CIVIL	COMPUTER	ELECTRICAL	ENGINEERING, GENERAL	ENGINEERING MECHANICS	ENGINEERING PHYSICS	ENGINEERING SCIENCE	ENVIRONMENTAL	GEOLOGICAL	INDUSTRIAL	MARINE	MATERIALS	MECHANICAL	METALLURGICAL	MINING	NUCLEAR	PETROLEUM	SYSTEMS	ALL OTHER ENGINEERING	TOTAL ENGINEERING	WOMEN	U.S. NEGRO	FOREIGN
VIRGINIA (cont.)																											
Old Dominion U					14		21										8							43	0	0	0
Virginia Military Inst					67		12																	79	0	1	3
Virginia Poly Inst	34	7		49	95		116		13					75			98	10	11				4	512	4	NA	NA
#Washington & Lee U										5														5	NA	1	NA
WASHINGTON																											
#Gonzaga U					7		6				2						7							22	1	NA	4
St. Martins Coll					12																			12	0	0	4
Seattle U					9		15				11						13							48	1	NA	NA
U of Washington	62			46	90		175							46			127	9	7				26	588	6	2	60
Walla Walla Coll					5		2										4							11	0	0	2
Washington St U		6		16	29		50										23	3					104	231	5	NA	30
WEST VIRGINIA																											
Marshall U					6		6																	12	0	0	1
W Va Inst of Tech				11	19		41										14							85	0	NA	NA
West Virginia U	27	1		18	48		57							20			42		10		5			228	2	NA	NA
WISCONSIN																											
Marquette U					54		99										74							227	2	1	NA
#Milwaukee Sch of Engrg							56										49							105	0	1	5
U of Wisconsin-Madison		2		62	81		155		7					30			101	16	3	18				475	5	NA	55
U of Wisconsin-Milwaukee					21	11	50		6		7			7		6	20							128	0	NA	NA
U of Wisconsin-Platville		1			67									1			10							79	0	0	5
WYOMING																											
U of Wyoming	11	7	7	8	43		20										40			1	21		14	172	1	0	11
PUERTO RICO																											
U of Puerto Rico				38	106		80							33			44							301	12	NA	37
TOTALS	2018	394	84	3600	6982	359	12430	1903	245	290	884	77	177	3159	455	112	8642	590	194	291	307	133	864	44190	493	405	1944

e - estimated by school
- not on list of schools having at least one curriculum accredited by the Engineers Council for Professional Development

TABLE D

MASTERS DEGREE	AEROSPACE	AGRICULTURAL	BIOMEDICAL	CHEMICAL	CIVIL	COMPUTER	ELECTRICAL	ENGINEERING, GENERAL	ENGINEERING MECHANICS	ENGINEERING PHYSICS	ENGINEERING SCIENCE	ENVIRONMENTAL	GEOLOGICAL	INDUSTRIAL	MARINE	MATERIALS	MECHANICAL	METALLURGICAL	MINING	NUCLEAR	PETROLEUM	SYSTEMS	ALL OTHER ENGINEERING	TOTAL ENGINEERING	WOMEN	U.S. NEGRO	FOREIGN
ALABAMA																											
Auburn U	1	2		3	10		12							4			5							37	0	0	8
Tuskegee Inst							7										6							13	0	3	10
U of Alabama-Birmingham								7																7	0	0	2
U of Alabama-Huntsville							6		1		3			3										13	0	0	0
U of Alabama-University	8			4	3		9	1	7					13			4	1						50	2	0	3
ALASKA																											
U of Alaska							1					3		1	1								1	7	NA	NA	NA
ARIZONA																											
Arizona St U				6	3		40	17	4					19			13							102	4	NA	NA
U of Arizona	18	2		3	8		24						5			1	22		3	6		11		103	0	NA	11
ARKANSAS																											
U of Arkansas		1		5	16		12				3			15			7					1		60	0	0	14
CALIFORNIA																											
Calif Inst of Tech	19			4	6		12		2	3	8	12				2	10							78	1	2	37
Cal St Poly U-San Luis Ob								6																6	NA	NA	4
Cal St U-Fullerton								50																50	NA	NA	NA
Cal St U-Long Beach					35		35	12									16							98	NA	NA	NA
Cal St U-Los Angeles					13		19										12							44	1	0	NA
Cal St U-Northridge								35																35	NA	NA	NA
Cal St U-San Diego	4				5		25										4							38	0	NA	NA
Cal St U-San Jose				7	35		61							20		3	21							147	NA	NA	NA
Harvey Mudd Coll								5																5	NA	NA	NA
Loyola U of Los Angeles					22		41										12							75	0	0	20
Northrop Inst of Tech	1							1																2	0	NA	NA
Sacramento St Coll					21		6		4								4							35	NA	NA	NA
Stanford U	42			23	134	30	157	25	20		6		9	62		15	61		11		9	82		686	29	4	198
U.S. Naval Post-Grad Sch	57						57										35							149	0	0	19
U of Calif-Berkeley				20	85		131					31	4	46	4		85	15		20			50	491	7	3	332
U of Calif-Davis		6		3	13		10				9						13							54	0	0	17
U of Calif-Irvine					23		14																	37	0	0	1
U of Calif-Los Angeles						59	32	30	39		20					10						58		248	9	NA	NA
U of Calif-San Diego	4		3				7		1	8														23	2	0	5
U of Calif-Santa Barbara				7			26										11							44	1	0	13
U of Redlands								14																14	NA	NA	NA
U of Santa Clara					1		52	8	3								16							80	NA	3	14
U of Southern Calif	11		4	13	34	49	109					4		10	2	4	47				4	11		302	5e	NA	NA
West Coast U																						140		140	NA	NA	NA
COLORADO																											
Colorado Sch of Mines				12							7		16					13	12		7			67	2	0	27
Colorado St U		7			41		13										18							79	1	0	24
U of Colorado	15			10	9		27	6	1		9						9							86	NA	NA	NA
U of Denver				7	9		13		1									6						36	0	0	8
CONNECTICUT																											
R P I - Hartford	5					46	4		8	2							45	9		1		2	1	123	4	0	0
U of Bridgeport							11		4					11			8							34	0	0	6
U of Connecticut	1		2	9	33	9	23										33	10						120	1	0	22
U of New Haven														6										6	0	0	2
Yale U											28													28	0	NA	0
DELAWARE																											
U of Delaware				21	17		5										11	1						55	0	NA	23
DISTRICT OF COLUMBIA																											
Catholic U of America	13		1	4	27		19										9			3			6	82	4	0	18
George Washington U	3		10		3	14	31		1					80	2		12					11	1	168	2	NA	13
Howard U					9		3										1							13	2	0	12
FLORIDA																											
Florida Atlantic U															3									3	NA	NA	NA
Florida Inst of Tech	7						28					13												48	0	NA	NA
Florida St U											2													2	NA	NA	NA
Florida Tech U												15												15	1	0	0
U of Florida	7	3		16	18		67				7	47		45	5		26	5		15				261	5	0	33
U of Miami					8		7							6	6		4							31	0	NA	NA
U of South Florida							10				8			13			3							34	0	0	NA

Table D (continued)

MASTERS DEGREE	AEROSPACE	AGRICULTURAL	BIOMEDICAL	CHEMICAL	CIVIL	COMPUTER	ELECTRICAL	ENGINEERING, GENERAL	ENGINEERING MECHANICS	ENGINEERING PHYSICS	ENGINEERING SCIENCE	ENVIRONMENTAL	GEOLOGICAL	INDUSTRIAL	MARINE	MATERIALS	MECHANICAL	METALLURGICAL	MINING	NUCLEAR	PETROLEUM	SYSTEMS	ALL OTHER ENGINEERING	TOTAL ENGINEERING	WOMEN	U.S. NEGRO	FOREIGN
GEORGIA																											
Georgia Inst of Tech	42			15	71		48				9			47			14			32			5	283	2	0	NA
U of Georgia		6																						6	0	0	2
HAWAII																											
U of Hawaii					7		14								5		7							33	0	0	16
IDAHO																											
Idaho St U																				2				2	0	0	0
U of Idaho		8		12	9		7						3				5							44	0	0	18
ILLINOIS																											
Bradley U							4		1					15			1							21	1	NA	NA
Illinois Inst of Tech				12	7		44		10			1		49			16	2			2		1	144	2	NA	23
Midwest Coll of Engrg					2		12																6	20	0	1	4
Northwestern U			3	21	10	9	21				4	20		9		11	9			3			15	135	12	0	48
Southern Illinois U								6																6	0	0	6
U of Illinois-Chicago						25											16							41	NA	NA	NA
U of Illinois-Urbana	10	12		13	122	35	70		11					11			33	9		23			16	365	7	0	108
INDIANA																											
Purdue U	41	4		18	64		85	19						30			58	7		12				338	NA	3	60
Rose-Hulman Inst of Tech			1				2										2							5	NA	NA	3
U of Notre Dame	3			5	4		9				1						4	4						30	0	0	11
IOWA																											
Iowa St U	4	5	5	12	21		26							11			6	4		12			5	111	0	0	33
U of Iowa				3	22		7		4					19			4							59	NA	NA	19
KANSAS																											
Kansas St U		5		5	16		9		2					20			9			6				72	0	0	33
U of Kansas	5			5	5		17	1				18					11	1			6		1	72	2	0	26
Wichita St U	6						6		3								5							20	0	0	3
KENTUCKY																											
U of Kentucky		7		10	12		9		2								9	5						54	1	NA	19
U of Louisville				19	22		17							3			20							81	NA	NA	NA
LOUISIANA																											
L S U-Baton Rouge		5		15	8		14				2			4			10			3	3			64	NA	NA	NA
L S U-New Orleans																	2							2	0	0	0
Louisiana Tech U				3	4		3							2			1				1			14	0	0	7
McNeese St U				4			2																	6	0	0	0
Tulane U				8	6		3										16					5		38	1	0	16
U of SW Louisiana					1		1																	2	NA	NA	NA
MAINE																											
U of Maine				1	11		2	2									6					2		24	1	NA	NA
MARYLAND																											
Johns Hopkins U							39		8			6		2										55	2	0	3
U of Maryland	2			19	15		55										18							109	0	0	8
MASSACHUSETTS																											
Boston U	2																					2	18	22	0	0	12
Harvard U								19																19	NA	NA	NA
Lowell Tech Inst				5			13										2			2		1	4	27	0	0	11
M I T	56			44	57		113								25		61	14		27				397	NA	NA	NA
Northeastern				5	27		147							103			39							321	10	NA	12
Tufts U				9	15		1	3									1							29	NA	NA	NA
U of Massachusetts				6	13		11					4		11	4		15							64	NA	NA	NA
Worcester Poly Inst			3	7	9		10									4	23			2				58	1	NA	58
MICHIGAN																											
Michigan St U		8		7	17	9	10		3			3				3	7	7				13		87	1	NA	17
Michigan Tech U				6	18		9		6				3				17	8						67	1	NA	18
Oakland U								7																7	0	0	1
U of Detroit				6	6		19										19							50	0	0	14

Table D (continued)

MASTERS DEGREE	AEROSPACE	AGRICULTURAL	BIOMEDICAL	CHEMICAL	CIVIL	COMPUTER	ELECTRICAL	ENGINEERING, GENERAL	ENGINEERING MECHANICS	ENGINEERING PHYSICS	ENGINEERING SCIENCE	ENVIRONMENTAL	GEOLOGICAL	INDUSTRIAL	MARINE	MATERIALS	MECHANICAL	METALLURGICAL	MINING	NUCLEAR	PETROLEUM	SYSTEMS	ALL OTHER ENGINEERING	TOTAL ENGINEERING	WOMEN	U.S. NEGRO	FOREIGN
MICHIGAN (cont.)																											
U of Michigan	22			21	31	45	33		18			30		44	27	4	48	7		12			7	349	10	NA	NA
Wayne St U				12	23		31							20			48	6						140	3	1	66
MINNESOTA																											
U of Minnesota	7	6		8	18	12	39		2				5	12		2	22	3	2					138	NA	NA	NA
MISSISSIPPI																											
Mississippi St U	6	2			16		9		1					8		4	7			1				54	0	0	13
U of Mississippi											14													14	0	0	11
MISSOURI																											
U of Missouri-Columbia		8		16	30		56							9			22			12				153	1	0	0
U of Missouri-Rolla	1			16	48		27		12			1	6	167			38	21	4	5	6		7	359	1	NA	NA
Washington U			2	19	4	21	21	1				3				2	10					7		90	3	0	36
MONTANA																											
Mont Mineral Sci & Tech											2		3						3					8	NA	NA	NA
Montana St U		3		3	14		5							6			10							41	NA	NA	NA
NEBRASKA																											
U of Nebraska-Lincoln		5		5	18	3	10		4								9							54	0	NA	7e
NEVADA																											
U of Nevada-Reno					2		1										2	3	2					10	NA	NA	NA
NEW HAMPSHIRE																											
Dartmouth Coll								2			6													8	0	0	2
U of New Hampshire				4	6		19										6							35	1	NA	NA
NEW JERSEY																											
Fairleigh Dickinson U				6		10	53			27	8						29					1		134	NA	NA	NA
Monmouth Coll							7																	7	0	1	0
Newark Coll of Engrg				13	32		41				26			34			22							168	3	3	32
Princeton U	22			2	6		16																	46	1	NA	13
Rutgers U		1	2	9	6		20					2		12			11							63	2	NA	NA
Stevens Inst of Tech				25			37								8		23							93	1	NA	37
NEW MEXICO																											
N M Inst Mining & Tech				2					2	3	2		8					8	3		1			29	NA	NA	NA
New Mexico St U				2	9		22										10							43	NA	NA	8
U of New Mexico				1	9		36										20			9				75	1	0	16
NEW YORK																											
City Coll of CUNY				5	21		35										32							93	1	4e	20e
Clarkson Coll of Tech				16	11		12				30						5							74	1	NA	13
Columbia U				15	41		50		6					35	2		13	3	7	7				179	6	NA	NA
Cooper Union				1	6		4										2							13	0	0	[illegible]
Cornell U	5	3		20	48	8	45		4	10				30		10	22							214	7	3	40
Manhattan Coll				14								21												35	0	NA	6
N Y St Coll of Ceramics																							6	6	0	0	3
New York U	12			25	52		135				30			104			12	8		11			15	404	21	NA	NA
Poly Inst of Brooklyn	16		9	15	45		121							2			38	9				42	37	334	16	2	87
C. W. Post - LIU														79										79	NA	NA	NA
Pratt Inst				2		40	19				7						11							79	2	NA	NA
R P I	12		1	15	16		103		2		7	10		3		9	35			12				225	1	0	32
Rochester Inst of Tech							10										5							15	0	0	4
SUNY Buffalo	1			14	14	22	17				18			21			16							123	3	NA	59
SUNY Stony Brook						6	3		11		18												11	49	NA	NA	NA
Syracuse U	2			8	9		96							6			20							141	0	NA	48
Union Coll					1		16										24							41	1	NA	2
U of Rochester				8			13									4	12						29	66	2	NA	14
NORTH CAROLINA																											
Duke U					3		5										8							[illegible]6	0	0	12
North Carolina St U		5		4	24		15							15		5	25			10				103	0	0	31
U of N C-Chapel Hill												10												10	0	0	2

Table D (continued)

MASTERS DEGREE	AEROSPACE	AGRICULTURAL	BIOMEDICAL	CHEMICAL	CIVIL	COMPUTER	ELECTRICAL	ENGINEERING, GENERAL	ENGINEERING MECHANICS	ENGINEERING PHYSICS	ENGINEERING SCIENCE	ENVIRONMENTAL	GEOLOGICAL	INDUSTRIAL	MARINE	MATERIALS	MECHANICAL	METALLURGICAL	MINING	NUCLEAR	PETROLEUM	SYSTEMS	ALL OTHER ENGINEERING	TOTAL ENGINEERING	WOMEN	U.S. NEGRO	FOREIGN
NORTH DAKOTA																											
North Dakota St U		2			6		18							1			7							34	0	0	12
U of North Dakota				2	4		2										3							11	0	0	3
OHIO																											
Air Force Inst of Tech	63						56			21				15						11		19		185	0	NA	3
Case Western Reserve U			2	11	3	3	10	1	4								6	13				5		58	0	1	21
Cleveland St U				15	1		24		2					6			8							56	0	0	16
Ohio St U	12	9		26	21	47	88		3					14			38	10		9			19	296	10	NA	64
Ohio U				6	4		5							43										58	0	0	24
U of Akron				7	8		4										16							35	0	0	19
U of Cincinnati	22			9	17		23					12				3	36	5		11				138	2	0	48
U of Dayton					3		11	3						46			10							73	1	2	10
U of Toledo				9	7		8				22			11			8							65	1	0	13
Wright St U																						3		3	0	0	3
Youngstown U					7		3										11	3						24	NA	NA	NA
OKLAHOMA																											
Oklahoma St U		7		6	16		29	14				2		26			25						2	127	NA	NA	45
U of Oklahoma	4			10	12		9			1				9			9	1		1	5		12	73	1	NA	19
U of Tulsa				9										6			2				9			26	NA	NA	15
OREGON																											
Oregon St U				3	18		19							2	3		14			2				61	1	0	23
U of Portland							1		1															2	0	0	2
PENNSYLVANIA																											
Bucknell U				2	7		2										2							13	0	0	5
Carnegie-Mellon U			1	15	10		27	1									19	14		14				101	2	2	36
Drexel U	1		15	2	10		25		6			25		21		6	14							125	5	0	8e
Gannon Coll							3																	3	0	0	0
Lehigh U				9	13		8		4					24			5	24						87	1	NA	27
Pennsylvania St U	5	3		11	22		18	6	2		87	2		4			18	5	9	17	10		11	230	2	NA	NA
U of Pennsylvania			1	16	10	30	31		1								13	4				32		138	6	1	12
U of Pittsburgh				8	19		32							18			13	7			2			99	1	0	28
Villanova U				3	21		13										14						2	53	0	0	27
Widener Coll									1													8		9	0	0	5
RHODE ISLAND																											
Brown U	2						8									2	4							16	0	0	9
U of Rhode Island				5	7		11							12	12		1							48	0	NA	19
SOUTH CAROLINA																											
Clemson U			4	5	14		8		3			15				1	5						3	58	1	NA	12
U of South Carolina				7	2		6										1						10	26	2	0	5
SOUTH DAKOTA																											
S D Sch of Mines & Tech				10	15		10						11				9	3	5					63	0	NA	21
South Dakota St U		3			6		13										12							34	0	0	14
TENNESSEE																											
Tennessee Tech U				1	4		8		1		5						10							29	1	0	9
U of Tennessee-Knoxville	4			14	7		35		5		2	5		12			12	2		3				101	2	NA	NA
Vanderbilt U					4	1	2					7		10		2	6							32	1	1	3
TEXAS																											
Lamar U																							15	15	NA	NA	11
Rice U				22	4		34					3				1	8							72	1	0	10
St. Mary's U											1			4										5	NA	NA	1
Southern Methodist U	2		2		8		59					2		31			18					35		157	1	0	6
Texas A & I St U				3			8	1																12	NA	NA	NA
Texas A & M U	7	4		15	40	69	20							72			10			5	4			246	4	NA	NA
Texas Tech U		4		5	6		9	13						27			9							73	0	0	18
Trinity U											1													1	0	0	0
U of Houston				9	17		16	4						22			16				2			86	2	NA	NA
U of Texas-Arlington	4				4		10		2					6			11							37	1	NA	9
U of Texas-Austin	20			12	20		37		5			18					35				10	2		159	1	NA	NA
U of Texas-El Paso	2				11		18										15	3				3		52	0	NA	6e

Table D (continued)

MASTERS DEGREE	AEROSPACE	AGRICULTURAL	BIOMEDICAL	CHEMICAL	CIVIL	COMPUTER	ELECTRICAL	ENGINEERING, GENERAL	ENGINEERING MECHANICS	ENGINEERING PHYSICS	ENGINEERING SCIENCE	ENVIRONMENTAL	GEOLOGICAL	INDUSTRIAL	MARINE	MATERIALS	MECHANICAL	METALLURGICAL	MINING	NUCLEAR	PETROLEUM	SYSTEMS	ALL OTHER ENGINEERING	TOTAL ENGINEERING	WOMEN	U.S. NEGRO	FOREIGN
UTAH																											
Brigham Young U				7	46		12										25							90	NA	NA	NA
U of Utah				2	5	11	13						14	33		2	14	12					8	114	NA	NA	NA
Utah St U		11			22		12										4						10	59	0	0	31
VERMONT																											
U of Vermont					6		4										5							15	0	0	3
VIRGINIA																											
Inst of Textile Tech																							11	11	0	0	0
U of Virginia	3			5	10	12	16		1	4	4					3	8			11				77	2	1	11
Old Dominion U					5		15		1								8							29	0	3	7
Virginia Poly Inst	4	2		12	18		10		10			11		7			13			4		1		92	2	NA	NA
WASHINGTON																											
Seattle U							8	2									5							15	0	NA	NA
U of Washington	17			13	76		32										23	6	3	9			4	183	3	0	54
Washington St U		2		3	3		10					4				3	8			2				35	0	NA	9
WEST VIRGINIA																											
West Virginia U	6			8	33		6		2					8			7		4		2			76	0	NA	NA
WISCONSIN																											
Inst of Paper Chemistry				5																				5	0	0	1
Marquette U			3		14		20									2	14							53	1	0	0
U of Wisconsin-Madison		3		15	35		44	2	10			9		7		1	26	10	1	15				179	5	NA	56
U of Wisconsin-Milwaukee					15	2	11		3					2		6	7							46	1	0	9
WYOMING																											
U of Wyoming		2	4	3	6		7					7					5				1			35	0	0	9
PUERTO RICO																											
U of Puerto Rico							3										1			2				6	NA	NA	NA
TOTAL	671	166	78	1158	2507	627	4211	324	275	79	416	376	87	1796	109	125	2312	311	69	374	86	497	349	17003	269	44	2539

e - estimated by school

TABLE E

ENGINEER DEGREE

	AEROSPACE	AGRICULTURAL	BIOMEDICAL	CHEMICAL	CIVIL	COMPUTER	ELECTRICAL	ENGINEERING, GENERAL	ENGINEERING MECHANICS	ENGINEERING PHYSICS	ENGINEERING SCIENCE	ENVIRONMENTAL	GEOLOGICAL	INDUSTRIAL	MARINE	MATERIALS	MECHANICAL	METALLURGICAL	MINING	NUCLEAR	PETROLEUM	SYSTEMS	ALL OTHER ENGINEERING	TOTAL ENGINEERING	WOMEN	U.S. NEGRO	FOREIGN
CALIFORNIA																											
Calif Inst of Tech	7																							7	NA	NA	2
Stanford U	6			3	6		12		3					4		1	3							38	1	0	10
U.S. Naval Post-Grad Sch	13						11										5							29	0	0	7
U of Calif-Berkeley							1																	1	NA	NA	NA
U of Calif-San Diego							5			6														11	1	0	4
U of Southern California				1	5		11							2		2	10				1			32	NA	NA	NA
FLORIDA																											
U of Florida					1		1							2										4	0	0	2
ILLINOIS																											
Midwest Coll of Engrg							1																	1	0	0	0
MASSACHUSETTS																											
M I T	3			6	17		49								19		13	2		5				114	NA	NA	NA
Northeastern U							6																	6	0	NA	1
MICHIGAN																											
U of Michigan	2						2								1									5	NA	NA	NA
NEW JERSEY																											
Rutgers U				1	1																			2	NA	NA	NA
NEW YORK																											
Columbia U					5		10							9			6			2				32	NA	NA	NA
New York U	1				4		13										1							19	NA	NA	NA
Poly Inst of Brooklyn	1													4			2							7	0	0	0
NORTH CAROLINA																											
North Carolina St U				1	4		2							2			1							10	NA	NA	NA
SOUTH CAROLINA																											
Clemson U												1											3	4	0	NA	0
TEXAS																											
Southern Methodist U					1		11										1							13	0	0	8
UTAH																											
U of Utah				2	6		5										2	1						16	NA	NA	NA
Utah St U					1																			1	0	0	0
WISCONSIN																											
U of Wisconsin							1																	1	NA	NA	NA
TOTAL	33			14	51		141		3	6		1		23	20	3	44	3		7	1		3	353	2	0	34

TABLE F

DOCTORS DEGREE

	AEROSPACE	AGRICULTURAL	BIOMEDICAL	CHEMICAL	CIVIL	COMPUTER	ELECTRICAL	ENGINEERING, GENERAL	ENGINEERING MECHANICS	ENGINEERING PHYSICS	ENGINEERING SCIENCE	ENVIRONMENTAL	GEOLOGICAL	INDUSTRIAL	MARINE	MATERIALS	MECHANICAL	METALLURGICAL	MINING	NUCLEAR	PETROLEUM	SYSTEMS	ALL OTHER ENGINEERING	TOTAL ENGINEERING	WOMEN	U.S. NEGRO	FOREIGN
ALABAMA																											
Auburn U		1					9										2							12	0	0	2
U of Alabama-University				1			5																	6	0	0	0
ARIZONA																											
Arizona St U					1		10		2					6			4							23	0	NA	NA
U of Arizona	1			2	4		14						7				1		1	1				31	1	NA	1
ARKANSAS																											
U of Arkansas							3				3			5			1							12	0	0	2
CALIFORNIA																											
Calif Inst of Tech	7			6	4		10		5		11	1				2	2							48	1	NA	35
Stanford U	16			3	16	11	57		6				16	9		12	13		1		3	24		187	2	0	49
U.S. Naval Post-Grad Sch	1																							1	0	0	0
U of Calif-Berkeley				22	26		39					8	6	21	2		29	18		10			5	186	0	1	79
U of Calif-Davis		1		2	12		7				12						6							40	1	0	6
U of Calif-Irvine					1		6																	7	0	0	1
U of Calif-Los Angeles						9	8		22		17					3						27		86	0	NA	NA
U of Calif-San Diego	3		1						3	10														17	0	0	8
U of Calif-Santa Barbara							6										1							7	NA	NA	NA
U of Southern California	7		1	2	2		25	5								4	5							51	0	NA	NA
COLORADO																											
Colorado Sch of Mines				5									7					4	1		1			18	0	0	0
Colorado St U		2			23		6										2							33	0	0	17
U of Colorado	4			4	6		8				1													23	NA	NA	NA
U of Denver				2			6		1									2						11	0	0	2
CONNECTICUT																											
U of Connecticut	1		1	1	5	4	5										1	2						20	1	0	5
Yale U											31													31	1	NA	0
DELAWARE																											
U of Delaware				7	1		3										5							16	0	NA	6
DISTRICT OF COLUMBIA																											
Catholic U of America	4			1	1		1										13			2			3	25	0	0	5
George Washington U			3		1	2	5		1								1					4	1	18	0	NA	0
FLORIDA																											
Florida St U											1													1	NA	NA	NA
U of Florida	3			9	4		10				3	6		7			2	5		1				50	1	C	12
U of Miami																	1							1	0	NA	NA
GEORGIA																											
Georgia Inst of Tech	10			4	4		3				3			4			7			7				42	0	0	NA
HAWAII																											
U of Hawaii															1									1	0	0	0
IDAHO																											
U of Idaho				3														1						4	0	0	1
ILLINOIS																											
Illinois Inst of Tech				2	1		8		5			1		1			5				3			26	0	NA	14
Northwestern U				8	18	4	11				2	7		7		12	11			3			2	85	0	0	30
U of Illinois-Chicago											1													1	NA	NA	NA
U of Illinois-Urbana	4	4		9	22	18	22		13								13	4		7			2	118	1	0	46
INDIANA																											
Purdue U	12	7		9	13		28							10			22	3		4				108	NA	1	25
U of Notre Dame	2			2	2		2				3						2							13	0	0	4
IOWA																											
Iowa St U	4	8		3	4		24		3					2			1	8		4			2	63	0	0	14

DOCTORS DEGREE	AEROSPACE	AGRICULTURAL	BIOMEDICAL	CHEMICAL	CIVIL	COMPUTER	ELECTRICAL	ENGINEERING, GENERAL	ENGINEERING MECHANICS	ENGINEERING PHYSICS	ENGINEERING SCIENCE	ENVIRONMENTAL	GEOLOGICAL	INDUSTRIAL	MARINE	MATERIALS	MECHANICAL	METALLURGICAL	MINING	NUCLEAR	PETROLEUM	SYSTEMS	ALL OTHER ENGINEERING	TOTAL ENGINEERING	WOMEN	U.S. NEGRO	FOREIGN
IOWA (cont)																											
U of Iowa				5	3		3		6					2			4							23	1	1	13
KANSAS																											
Kansas St U				8			1							2			6			6				23	0	0	11
U of Kansas	1			2			1	6				3												13	0	0	0
KENTUCKY																											
U of Kentucky																	3							3	0	NA	1
LOUISIANA																											
L S U-Baton Rouge				9	4		1				2						2							18	NA	NA	NA
Louisiana Tech U																					1			1	0	0	0
Tulane U				4													3							7	0	0	2
MAINE																											
U of Maine				3	1																			4	0	NA	NA
MARYLAND																											
Johns Hopkins U			2				11		9			6		5										33	1	0	13
U of Maryland	1			12	3												8							32	0	0	9
MASSACHUSETTS																											
Harvard U								8																8	NA	NA	NA
M I T	14			8	15		47								5		24	26		23				162	NA	NA	NA
Northeastern U				1			3										1							5	0	NA	0
Tufts U				2																				2	NA	NA	NA
U of Massachusetts				6	4		4										4							18	NA	NA	NA
Worchester Poly Inst			2	2			3										2							9	NA	NA	1
MICHIGAN																											
Michigan St U		2		3	6	1	15		5								3	1				4		40	NA	NA	16
Michigan Tech U									4									1						5	NA	NA	1
U of Detroit				2	5		1										2							10	0	0	5
U of Michigan	13			5	9	8	14		7					9	4	1	16	5		12			5	108	NA	NA	NA
Wayne St U				1													5							6	0	0	4
MINNESOTA																											
U of Minnesota	3	5		9	5	4	15									3	14	6	1					65	NA	NA	NA
MISSISSIPPI																											
Mississippi St U					1		3	4																8	0	0	1
U of Mississippi											4													4	0	0	4
MISSOURI																											
U of Missouri-Columbia		4		8	3		14										6			2				37	1	0	0
U of Missouri-Rolla				5	3		2						2				6	5	2	1	1		5	32	2	NA	NA
Washington U				4	2	4	7		3			1				1	3					4		29	0	0	10
MONTANA																											
Montana St U				2	1												2							5	NA	NA	NA
NEBRASKA																											
U of Nebraska-Lincoln				1			4		2															7	1	NA	3
NEW HAMPSHIRE																											
Dartmouth Coll								2			4													6	0	0	3
NEW JERSEY																											
Newark Coll of Engrg				3			2										1							6	NA	NA	1
Princeton U	18			11	1		6																	36	0	NA	12
Rutgers U				2	3		5					2					3						6	21	NA	NA	NA
Stevens Inst of Tech				1			1								1		1							4	NA	NA	NA

Table F (continued)

DOCTORS DEGREE	AEROSPACE	AGRICULTURAL	BIOMEDICAL	CHEMICAL	CIVIL	COMPUTER	ELECTRICAL	ENGINEERING, GENERAL	ENGINEERING MECHANICS	ENGINEERING PHYSICS	ENGINEERING SCIENCE	ENVIRONMENTAL	GEOLOGICAL	INDUSTRIAL	MARINE	MATERIALS	MECHANICAL	METALLURGICAL	MINING	NUCLEAR	PETROLEUM	SYSTEMS	ALL OTHER ENGINEERING	TOTAL ENGINEERING	WOMEN	U.S. NEGRO	FOREIGN
NEW MEXICO																											
N M Inst Mining & Tech				1						2			1											4	NA	NA	NA
New Mexico St U					1		2										1							4	NA	NA	1
U of New Mexico					4		7										4			2				17	0	0	2
NEW YORK																											
City Coll of CUNY				4	4		4										3							15	0	0	0
Clarkson Coll of Tech				5																				5	0	NA	3
Columbia U				6	4		11		5					2			8	1	0	1				48	2	NA	NA
Cooper Union								3																3	0	0	2
Cornell U	6	6		7	13	6	10		7	6				9		4	10			4				88	2	NA	33
N Y St Coll of Ceramics																							5	5	0	0	1
New York U	9			4	3		22				2	1		17			1	2		1			6	68	1	NA	NA
Poly Inst of Brooklyn	6		5	5	3		27										1	3				12	4	66	4	2	21
R P I	1		2	2	2		9		2		1	4				11	6			4				44	0	0	8
SUNY Buffalo	1			6	2	1	1				4			6			1							22		NA	12
SUNY Stony Brook							2		1		3					1								7	NA	NA	NA
Syracuse U				4	1		6										2							13	0	NA	7
U of Rochester				4			4										4						6	18	NA	NA	6
NORTH CAROLINA																											
Duke U			3		4		8										2							17	0	0	7
North Carolina St U		3		7	6		7									4	9			3				39	0	0	5
OHIO																											
Air Force Inst of Tech	8																							8	0	NA	0
Case Western Reserve U			2	8	7	2	6		9									8				5		47	0	0	20
Ohio St U	3	5		4	3	4	18		4					15			4	11		2			1	74	NA	NA	15
Ohio U							1																	1	0	0	1
U of Akron					2																			2	0	0	NA
U of Cincinnati	3			4	1		3									1	8	3		4				27	0	0	7
U of Toledo											3													3	0	0	3
OKLAHOMA																											
Oklahoma St U		6		3	8		6	1						9			9							42	0	0	11
U of Oklahoma	3			4	9		3			1	1			7			12				1		2	43	0	NA	11
U of Tulsa				2									2								3			7	NA	NA	NA
OREGON																											
Oregon St U				5	3		4							1			2	1						16	0	1	3
PENNSYLVANIA																											
Carnegie-Mellon U			1	10	5		18										5	7		5				51	0	0	13
Drexel U			2	1			5		10			6				4								28	0	0	7e
Lehigh U				4	10		2		5					3			3	10						37	NA	NA	20
Pennsylvania St U	4	2		3	7		5		7								3	3	3	3	1		8	49	0	NA	NA
U of Pennsylvania			3	12	3	1	27										7	14						67	1	NA	NA
U of Pittsburgh				4	6		6							2			2	2						22	0	0	7
RHODE ISLAND																											
Brown U	3						3									1	4							11	0	0	10
U of Rhode Island				2			1								4		2							9	0	NA	1
SOUTH CAROLINA																											
Clemson U			1	2	1		1					2					2							9	0	NA	0
U of South Carolina							1										1							2	0	0	1
SOUTH DAKOTA																											
S D Sch of Mines & Tech													2											2	NA	NA	2
TENNESSEE																											
U of Tennessee-Knoxville	5	1		5			1		2		1						3	1		3				22	NA	NA	NA
Vanderbilt U				1	2		2		1			3				2	1							12	0	0	3
TEXAS																											
Rice U				4	6		10									1	9							30	0	0	9
Southern Methodist U					2		27										1					7		37	1	0	12
Texas A & M U	1	6		2	10	4								11			4			1	2			41	0	NA	NA
Texas Tech U					3		4							7										14	0	0	8

DOCTORS DEGREE

	AEROSPACE	AGRICULTURAL	BIOMEDICAL	CHEMICAL	CIVIL	COMPUTER	ELECTRICAL	ENGINEERING, GENERAL	ENGINEERING MECHANICS	ENGINEERING PHYSICS	ENGINEERING SCIENCE	ENVIRONMENTAL	GEOLOGICAL	INDUSTRIAL	MARINE	MATERIALS	MECHANICAL	METALLURGICAL	MINING	NUCLEAR	PETROLEUM	SYSTEMS	ALL OTHER ENGINEERING	TOTAL ENGINEERING	WOMEN	U.S. NEGRO	FOREIGN
TEXAS (cont)																											
U of Houston				6	3		2							2			6							19	0	NA	NA
U of Texas-Arlington							3		2															5	NA	NA	1
U of Texas-Austin	8			10	22		16		4								12				5			77	0	NA	NA
UTAH																											
Brigham Young U				1	1																			2	NA	NA	NA
U of Utah			2	4	2		8						5	[illegible]		7	11						2	42	NA	NA	NA
Utah St U					7		2										4							13	0	0	2
VERMONT																											
U of Vermont							2										2							4	0	0	2
VIRGINIA																											
Inst of Textile Tech																							1	1	0	0	0
U of Virginia	2		2	6	1		3		1	5	2					3	3			3				31	0	0	1
Virginia Poly Inst	8			2	5		4		4					6		3	4			1				37	0	NA	NA
WASHINGTON																											
U of Washington	5			6	13		8										1	1		1			1	36	0	0	9
Washington St U											8													8	0	NA	2
WEST VIRGINIA																											
West Virginia U				3	3		5		4								1							16	0	NA	NA
WISCONSIN																											
Inst of Paper Chemistry				1																				1	0	0	0
Marquette U			3				1									3								7	0	0	0
U of Wisconsin-Madison		1		13	5		9		9			5		1			10	5	1	3				62	1	NA	20
WYOMING																											
U of Wyoming			2		1		1										1							5	0	0	0
TOTAL	205	64	38	413	438	83	850	29	174	24	123	56	48	189	17	83	458	163	20	124	21	87	67	3774	27	6	773

estimated by school

The following degrees are included under the category of "All Other Engineering" in the main data tables:

Architectural	B	M	E	D
Cal. St. Poly. San Luis Ob.	39	-	-	-
Heald Eng. Coll. *	4	-	-	-
U. Colorado	15	-	-	-
U. Miami	2	-	-	-
Chicago Tech. Coll.	26	-	-	-
Iowa St. U.	89	1	-	-
U. Kansas	8	1	-	-
No. Carolina A & T	3	-	-	-
N. Dakota St. U.	2	-	-	-
Oklahoma St. U.	5	2	-	-
Pennsylvania St. U.	22	4	-	-
Tennessee St. U.	4	-	-	-
Prairie View A & M	14	-	-	-
U. Texas Austin	29	-	-	-
Washington St. U. *	104	-	-	-
U. Wyoming	14	-	-	-

* Architecture

Ceramic	B	M	E	D
Georgia Tech.	10	2	-	-
U. Illinois Urbana	14	16	-	2
Iowa St. U.	5	4	-	2
U. Missouri Rolla	6	7	-	5
Rutgers U.	20	-	-	6
N M Inst. Mining & Tech.	1	-	-	-
N Y St Coll of Ceramics	[illegible]	[illegible]	-	5
N. Carolina St. U.	4	-	-	-
Ohio St. U.	[illegible]	10	-	1
Pennsylvania St. U.	23	4	-	2
Clemson U.	10	3	3	-
Virginia Poly.	4	-	-	-
U. Washington	26	4	-	1
U. Calif. Berkeley	-	4	-	1

Textile	B	M	E	D
Auburn U.	[illegible]	-	-	-
Georgia Tech.	5	3	-	-
Lowell Tech.	2	4	-	-
Inst. Textile Tech.	-	[illegible]	-	1
Phila. Coll. Textile Sci.	17	-	-	-

Manufacturing	B	M	E	D
U. Bridgeport	5	-	-	-
Chicago Tech. Coll. *	4	-	-	-
U. Illinois Chicago	8	-	-	-
Boston U.	[illegible]	18	-	-
Utah St. U.	10	[illegible]	-	-
U. Vermont **	6	-	-	-

* Tool
** Mfg. & Mgt.

Transportation	B	M	E	D
Northwestern U.	-	15	-	2
U. Illinois Chicago	1	-	-	-
Poly. Brooklyn	-	37	-	4
Villanova	-	2	-	-
U. So. Carolina	4	[illegible]	-	-
U. Calif. Berkeley	-	[illegible]	-	4

Welding	B	M	E	D
Millikin U.	1	-	-	-
Ohio St. U.	[illegible]	9	-	-
LeTourneau Coll.	7	-	-	-

Miscellaneous

		B	M	E	D
U. Alaska	Artic Eng.	-	1	-	-
U. Cal. Davis	Indiviual Major	1	-	-	-
R.P.I. Hartford	Automatic Control	-	1	-	-
Catholic U.	Acoustics	-	6	-	3
George Washington U.	Measurement Sci.	-	1	-	1
Illinois Tech.	Engineering Graphics	1	1	-	-
Illinois Tech.	Fire Protection	8	-	-	-
Midwest Coll. Eng.	Not Identified	-	6	-	-
U. Illinois Chicago	Urban Systems Eng.	5	-	-	-
L.S.U. Baton Rouge	Sugar Eng.	2	-	-	-
Tulane U.	Special Curriculum	20	-	-	-
U. Maine	Pulp & Paper Tech.	1	-	-	-
U. Maryland	Fire Protection Eng.	13	-	-	-
U. Michigan	Meteorology	-	7	-	5
U. Michigan	Meteorology & Oceanography	38	-	-	-
New York U.	Meteorology & Oceanography	12	15	-	6
SUNY Stony Brook	Urban Systems	-	11	-	-
U. Rochester	Optics	3	29	-	6
No. Carolina St. U.	Furniture Mfg. & Mgt.	26	-	-	-
U. Oklahoma	Meteorology	13	12	-	2
Penn St. U.	Eng. Acoustics	-	3	-	6
Brown U	Urban & Independent	12	-	-	-
Lamar U.	Not Identified	-	15	-	-
U. Utah	Meteorology	27	8	-	2

The following degrees have nomenclature that differs from the column headings under which they are tabulated. Where the variant nomenclature applies only to some of the degrees listed, these are indicated in parentheses after the name of the school. If only the name of the school is listed, this means that all degrees shown in the tables have the variant nomenclature indicated.

Aerospace

Aeronautical - Wichita St., U. Mich (1E)
Aeronautics - California Inst. of Tech.
Aerospace & Mech. Sci. - Princeton
Aerospace Science - U. Illinois Chicago, U. Michigan (2M,1D)
Aircraft Maintenance - Parks Coll.
Guided Missile - U. Texas El Paso

Agricultural

Agricultural & Irrigation - Utah St. U.

Biomedical

Bioengineering - U. Cal. San Diego. U. Illinois Chicago, Carnegie Mellon, Clemson
Biological - U. Conn, Rose-Hulman, Miss. State U.
Biology - U. New Mexico
Biomedical Electrical Eng. - U. Pennsylvania

Chemical

Chemical & Petrol. Refining - Colo. Sch. Mines (30B, 10M, 4D)
Chemistry - Fairleigh Dickinson. U. New Mexico, U. Tulsa (3B)
Chemistry-Metallurgy - Colo. Sch. Mines. (1D)

Civil

Building Construction - John Brown U.
City Planning - U. Wisconsin Madison (2B)
Civil & Construction - Iowa St.
Civil & Environmental - Cornell
Civil & Geological - Princeton
Construction - Cal. Poly San Luis Ob., Lawrence U., U. Michigan (8M)
Geodetic - U. Michigan (1M)
Geotechnical Option - U. Calif. Berkeley (32M, 6D)
Home Building - Trinity U.
Hydraulics Option - U. Calif. Berkeley (11M, 4D)
Soil Eng. - U. Illinois Chicago (4B)
Structural Design - U. Illinois Chicago (13B)
Structural Eng - U. Wisconsin Madison
Structures Option - U. Calif. Berkeley (42M, 16D)
Surveying & Photogrammetry - Cal. St. U. Fresno (5B)

Computer

Computer & Eng. Sci. - U. Pennsylvania
Computer & Info. Sci. - U. Florida
Computer, Info. & Control Eng. - U. Michigan
Computer Science - UCLA, U. So. Cal, West Coast U., U. Conn., U. Ill Chicago (B), U. Illinois Urbana (M&D), U. Nebraska. U. New Mexico, U. Virginia
Computer Sci. & EE - U. Colorado
Information Eng. - U. Illinois Chicago (M)

Electrical

Communication Eng. - U. Illinois Chicago (98B)
Electrical Eng/CS - U. Illinois Urbana (60B)
Electrical Science - U. Michigan (4M. 5D)
Electrical Sci. & Eng. - UCLA
Electronics - Cal. St. Poly San Luis Ob. (94B), Northrop Inst., Heald (4B), Monmouth Coll.
Wave Propagation & Radiation - U. Illinois Chicago (3B)

Engineering, General

College Program - Cornell
Design - Tufts (M)
EEP - UCLA (M)
Engineering - U. Alabama Birmingham, Cal. St. Poly San Luis Ob., Cal. St. U. Los Angeles, Cal. St. U. Northridge, Cal. St. U. Fullerton*, Cal. St. U. San Diego*, UCLA (B), So. Illinois U, U. Kansas, U. Maryland. Tufts (B), U. Detroit (3B), Dartmouth, Cleveland St., U. Cincinnati (27B evening program), Swarthmore, Texas Tech., U. Houston, U. Wisconsin Madison
*Includes all options
Engineering Analysis - Clemson
Engineering Composite Major - Mississippi St. U.
Engineering Design - U. Colorado
Engineering Operations - N. Car. St. U.
Interdisciplinary - Cooper Union

Engineering Mechanics

Applied Mechanics - Cal. Tech, Sacramento St. U., U. Cal. San Diego, U. So. Cal., Drexel, U. Virginia, U. Illinois Chicago (8B)
Fluid & Thermal Sci. - Case
Fluid Mechanics - U. Minnesota
Hydraulics - U. New Mexico
Mechanics - U. Colorado
Mechanics & Hydraulics - U. Iowa
Mechanics & Structures - UCLA
Structural Mechanics - U. Illinois Chicago (3B)
Theoretical & Applied Mech. - Cornell

Engineering Physics

Applied Physics - Cal. Tech, West Coast U., U. Illinois Chicago
Physics - U. New Mexico
Physics in Engineering - Loyola U. of Md.

Engineering Science

Applied Mathematics - Cal. Tech, West Coast U., U. Colorado, Northwestern, SUNY Stony Brook, U. Tulsa, U. Virginia (2B, 4M, 2D), U. Michigan (19B)
Applied Science - Cal. St. U. Chico, U. Cal. Davis
Energy & Kinetics - UCLA
Engineering & Applied Sci - Yale
Engineering Mathematics - U. Arizona, Fairleigh Dickinson (8B, 8M), Vanderbilt (9B), Colo. Sch. Mines
Eng. Science & Mech. - U. Florida
Fluid & Thermal - U. Alabama Huntsville
Gen. Sci. with Eng. Concentration - Seattle U.
Interdepartmental - U. Rochester
Mathematics - U. New Mexico (18B, 2M), New York U.
Math, Physics, Chemistry - Pratt
Science - Tufts (1B), U. New Mexico (11B)
Solids & Fluids - U. Illinois Chicago
Structures, Materials, Fluids - U. So. Florida

Environmental

Aeronomy & Planetary Atmospherics - U. Michigan (10M)
Atmospheric - Northwestern (1D)
Atmospheric Resources - U. Wyoming (3M)
Environmental & Planning - U. Missouri Rolla
Environmental Health - U. Alaska
Environmental Systems - Clemson (10M, 1E. 2D)
Sanitary - U. Calif Berkeley, Michigan St. U, Penn St., Virginia Poly. U. Michigan (9M)
Water & Air Resources - U. Illinois Chicago
Water Chemistry - U. Wisconsin Madison (1M, 5D)
Water Resource Mgt. - U. Wisconsin Madison (8M)
Water Resources - U. Kansas (3M), Clemson (5M). U. Wyoming (4M), U. Michigan (11M)

Geological

Earth Science - U. Tulsa
Eng. Geoscience - U. Cal. Berkeley
Geochemistry - Colo. Sch. Mines (3M, 1D)
Geology - U. New Mexico
Geophysical - Colo Sch. Mines, (25B, 4M, 3D). U. Missouri Rolla (2D), Montant Coll. Min. Sci (3B. 1M). U. New Mexico (3B, 3M)

Industrial

Engineering Administration - U. Denver, U. Delaware. Geo. Washington U. Bradley U., U. Tennessee (5M), So. Methodist (30M)
Engineering Management - U. Alaska, U. Dayton (M), U. Tulsa. Drexel (M). Vanderbilt
Industrial & Eng. Mgt. - Northeastern
Industrial & Eng. Oper. - Iowa St. U.
Industrial & Oper. Res. - Johns Hopkins, Cornell
Industrial & Systems - U. So. Cal., Ohio U., Illinois Tech.
Industrial Eng. & Mgt. - U. Missouri Rolla
Industrial Management - Cal. St. U. Long Beach
Management - New England Coll.
Management Eng. - U. Bridgeport, Worcester Poly., C.W. Post L.I.U., Norwich
Management Sci. - Fairleigh Dickinson (30B)
Systems-Management - Air Force Inst. Tech.

Marine

Coastal & Oceanography - U. Florida
Naval Arch. - U. Cal. Berkeley, U.S. Naval Acad. (7B), Webb
Naval Arch. & Marine - U. Michigan (B,M,D)
Ocean Eng. - U. Alaska, Cal. St. U. Long Beach, U.S. Coast Guard Acad., Florida Atlantic U., U. Miami, U. Hawaii, U.S. Naval Acad. (21B), M.I.T., U. Mass., Stevens, Columbia. Oregon St., U. Rhode Island

Materials

Materials & Mechanics - U. Minnesota
Materials Science - U. Cal. San Jose
Materials Sci. & Eng. - Cornell

Mechanical

Energy Conversion - U. Wisconsin Milwaukee (10B, 4M), U. Illinois Chicago (1B)
Energy Eng. - U. Illinois Chicago (7M)
Mechanical & Aero - Rutgers, Illinois Tech.
Mech. & Materials - U. Illinois Chicago (9M)
Mech. Anal. & Des. - U. Illinois Chicago (23B)
Mechanical Design - U. Wisconsin Milwaukee (10B, 3M).
Thermomechanical Eng. - U. Illinois Chicago (8B)

Metallurgical

Metallurgical & Materials - U. Florida, Illinois Tech., U. Pennsylvania, U. Pittsburgh, Purdue
Metallurgy - U. Illinois Chicago

Mining

Mineral - U. Alaska, U. Minnesota, Columbia (2B, 4M, 5D)
Mineral Dressing - Mont. Coll. Min. Sci. (1B, 2M)
Mineral Economics - Colo. Sch. Mines (6M)
Mining Eng. Mgt. - Penn. St. (7M)

Nuclear

Nuclear Science - U. Michigan (1M, 1D)

Petroleum

Gas Technology - Illinois Tech
Natural Gas - Texas A & I
Petro-Chemical - Louisiana St. Baton Rouge (1B)

Systems

Engineering Systems - U.C.L.A. (40M. 16D)
Operations Research - U. Arkansas, Stanford U. (55M, 18D). U. So. Cal, West Coast U. (69M), Geo. Washington U., Poly. Brooklyn, U. Texas Austin, Tulane U.
Op. Res./Sys. Anal. - U. Texas El Paso
Systems Analysis - U. Illinois Chicago
Sys-Analysis - Air Force Inst. Tech. (17M)
Sys-Reliability - Air Force Inst. Tech (2M)
Systems Science - U.C.L.A. (18M, 11D), Michigan St.

Degree Notes

U. Cal. Davis - 184 BS graduates, 189 degrees because of double majors.
Western New England - Bachelor's degrees include 43 evening division not ECPD accredited.
Cornell - MS and MEng degrees combined.
Rice - Professional Masters combined with MS.
Brigham Young - Bachelor's degrees include 64 Bach. Eng. Sci. not ECPD accredited.

TECHNOLOGY DEGREES
1971-72

In response to its 1971-72 survey of technology degrees, the Engineering Manpower Commission received replies from 470 institutions. While this is fewer schools than reported last year, the number of degrees is slightly higher. There were 22,578 associate degrees, 6,768 certificates, 5,487 bachelor's degrees, and 68 advanced or post-baccalaureate degrees.

As in the past, EMC has included pre-engineering transfer students in its statistics. These students may not receive an actual associate degree but presumably transfer into schools which have recognized engineering-degree programs. Many, however, terminate their education at this level.

This year there were 370 institutions granting associate degrees, 112 certificates, 80 bachelor's degrees, and 7 advanced degrees. Many schools offered two or more of these degrees.

Since the same schools do not report from year to year, it is impossible to make accurate comparisons. It is possible, however, to show realistic trends in the historical summary of degrees awarded by schools accredited by the Engineers' Council for Professional Development. Table G indicates how the numbers of schools and degrees have grown over recent years.

Table H reports the breakdown by curriculum and degree level for 20 separate groupings. The most popular curricula are still electronics at the certificate and associate degree levels and industrial technology at the bachelor's and post-baccalaureate levels.

As with the data for engineering schools, it is difficult to report accurately the total number of women, foreign nationals, and U. S. Negroes graduating from technical institutions. The following degrees were reported in the 1972 survey:

	Certificate	Associate	Bachelors	Post-Bachelors
Women	79	592	28	0
U.S. Negroes	158	464	125	0
Foreign Nationals	132	338	86	1

Tables I through L provide a complete breakdown by school, curriculum, and degree level. It should be noted that every effort has been made to report these data as completely and as accurately as possible, but it is impossible to guarantee that no errors exist in a tabulation of this size.

Table G

TECHNOLOGY DEGREES REPORTED BY INSTITUTIONS HAVING AT LEAST ONE CURRICULUM ACCREDITED BY ECPD

1954-1972[1]

Year Ended June 30	Associate Degree Programs[2] Number of Schools	Associate Degree Programs[2] Graduates	Bachelor's Degree Programs Number of Schools	Bachelor's Degree Programs Graduates
1972	68	9,084	15	1,736
1971	63	8,443	11	1,144
1970	52	7,740	5	720
1969	46	6,536	2	173
1968	44	6,264	1	30
1967	38	6,144	NO SURVEY	
1966	37	5,270		
1965	33	5,695		
1964	32	5,507		
1963	32	5,489		
1962	32	6,035		
1961	33	6,284		
1960	34	7,639		
1959	35	6,478		
1958	35	5,928		
1957	NO SURVEY			
1956	29	5,499		
1955	27	4,365		
1954	27	3,927		

1 Data for 1954-65 were gathered by Donald C. Metz and others for ASEE. Data for 1966 to date were provided by EMC.

2 Includes ECPD-accredited programs leading to certificates.

Table H

TECHNOLOGY DEGREES BY CURRICULUM AND LEVEL

1971-72

	Certificate	Associate	Bachelors	Post-Bachelors
Aircraft	247	704	244	0
Air Conditioning	473	255	24	1
Architectural	222	1293	166	0
Automotive	595	914	218	0
Chemical	41	340	6	0
Civil	152	2123	391	0
Computer	203	1673	159	0
Drafting & Design	503	1330	187	0
Electrical	436	2055	432	3
Electronic	3283	4416	861	8
General	2	351	284	0
Industrial Technology	58	473	1243	43
Manufacturing	6	518	444	12
Marine	2	127	6	0
Materials, Metals	68	110	12	0
Mechanical	244	2651	582	0
Mineral	0	28	0	0
Nuclear	0	55	5	0
Other Technology	233	1064	223	2
Pre-engineering	--	2098	--	--
TOTAL	6768	22578	5487	69

Technology or Pre-Engineering
Degree Level - Certificate

	AIRCRAFT	AIR CONDITIONING	ARCHITECTURAL	AUTOMOTIVE	CHEMICAL	CIVIL	COMPUTER	DRAFTING AND DESIGN	ELECTRICAL	ELECTRONIC	GENERAL	INDUSTRIAL TECHNOLOGY	MANUFACTURING	MARINE	MATERIALS, METALS	MECHANICAL	MINERAL	NUCLEAR	OTHER TECHNOLOGY	STUDENTS COMPLETING PRE-ENGINEERING PROGRAM	TOTAL TECHNOLOGY	WOMEN	U. S. NEGRO	FOREIGN
ALABAMA																								
Alabama Institute of Aviation Technology	108									9											117	NA	NA	NA
E E Reid State Vocational-Technical School		5		7					6	15											33	NA	NA	NA
J M Patterson State Vocational-Technical Sch		27		12			25	2		18											84	10	25*	0
United Electronics Institute										80											80	NA	NA	NA
ARKANSAS																								
United Electronics Institute										120											120	NA	NA	NA
University of Arkansas at Little Rock											1										1	0	0	0
CALIFORNIA																								
Cerritos College				3				1				8			1				1		14	NA	NA	NA
College of the Desert				1											1						2	0	0	0
College of the Redwoods										2									7		9	4	0	0
College of the Siskiyous				20																	20	0	0	1
Long Beach City College	23	17	1	13					2	1		37			4				41		139	10	NA	NA
San Bernardino Adult Vocational School										7											7	0	1	NA
San Diego Evening College						32	4						1		4						41	0	0	0
Sierra College				1		3		15		4									5		28	NA	NA	NA
Southwestern College			2	11																	13	0	0	0
COLORADO																								
Lamar Community College										5											5	NA	NA	NA
CONNECTICUT																								
Ward Technical College										22											22	0	2	2
FLORIDA																								
Massey Technical Institute							5	10		15											30	0	5	0
Pensacola Junior College										9											9	0	NA	NA
St. Johns River Junior College						1		1													2	0	0	0
GEORGIA																								
Athens Technical School		17	6	8	17		12	4		17					8						89	13	4	1
Griffin-Spalding County Area V-T School							16			6						4					26	11	0	0
Troup Arenty Area Vocational-Technical Sch								1		14									12		27	0	1	0
Walker County Technical School								16		7											23	0	2	0
HAWAII																								
Electronics Institute of Hawaii										35											35	NA	NA	NA
ILLINOIS																								
College of DuPage		10														1			15		26	0	0	0
DeVry Institute of Technology										210*											210	NA	NA	NA
King-Kennedy College		21	4	33				2													60	0	55	1
Olive-Harvey College			1			4	9			45									18		77	NA	NA	NA
University of Illinois Inst of Aviation	37									1											38	0	0	0
Wright College							1			3											4	NA	NA	NA
IOWA																								
Hawkeye Institute of Technology						7				20						13					40	0	4	0
Kirkwood Community College										20						13					33	0	0	0
United Electronics Institute										164											164	NA	NA	NA
Waldorf College								1													1	NA	NA	NA
KANSAS																								
Kansas Technical Institute	8																				8	NA	NA	NA
Somerset Area Vocational-Technical School										7											7	NA	NA	NA
KENTUCKY																								
Tilghman Area Vocational-Technical School		4		6		9		4	3	4											30	NA	NA	NA
United Electronics Institute										588											588	NA	NA	NA
LOUISIANA																								
Baton Rouge Vocational-Technical School								6		8									4		18	2	1	1
Delgado Junior College		34		18				10	7	2									30		101	NA	NA	NA
T H Harris Vocational-Technical School						9				26									9		44	0	1	0

Technology or Pre-Engineering Degree Level - Certificate	AIRCRAFT	AIR CONDITIONING	ARCHITECTURAL	AUTOMOTIVE	CHEMICAL	CIVIL	COMPUTER	DRAFTING AND DESIGN	ELECTRICAL	ELECTRONIC	GENERAL	INDUSTRIAL TECHNOLOGY	MANUFACTURING	MARINE	MATERIALS, METALS	MECHANICAL	MINERAL	NUCLEAR	OTHER TECHNOLOGY	STUDENTS COMPLETING PRE-ENGINEERING PROGRAM	TOTAL TECHNOLOGY	WOMEN	U.S. NEGRO	FOREIGN
MASSACHUSETTS																								
Blue Hills Regional Technical Institute									1	1											2	0	0	0
Franklin Institute of Boston				50																	50	0	1	2
Northeast Institute of Industrial Tech		183						37		64											284	1	7	11
Wentworth Institute			20			15		14		18											67	0	NA	1
Weymouth Vocational-Technical School			4																		4	NA	NA	NA
MICHIGAN																								
Alpena Community College				20																	20	NA	NA	NA
Delta College				17				16													33	NA	NA	NA
Lake Michigan College								1													1	NA	NA	NA
Macomb County Community College		8	2				9		8							16					43	NA	NA	NA
United Electronics Institute										137											137	NA	NA	NA
Western Michigan University	32																				32	NA	NA	NA
MINNESOTA																								
Duluth Area Vocational-Technical Institute			17				22	15	18	23					13				38		146	1	2	0
Dunwoody Industrial Institute		16	37			19	21	71	100	24											288	0	1	0
Hibbing Area Vocational-Technical Institute				10					15	12											37	0	0	0
Minneapolis Area Vocational-Technical Inst			12						28	6											46	0	1*	0
Northwestern Electronics Institute										86											86	0	1	2
St. Cloud Area Vocational-Technical Inst								10		35											45	0	0	0
St. Paul Vocational-Technical Institute			25		20		14	35	97	50											241	0	0	0
MISSISSIPPI																								
Meridian Junior College		6						4													10	0	3	0
Pearl River Junior College		11		10			11	10	9	6											57	10	6	0
MISSOURI																								
David Rankin Technical Institute		27	13	25			16			31											112	NA	NA	NA
Franklin Technical School		6								4											10	0	1	0
United Electronics Institute										91											91	NA	NA	NA
MONTANA																								
Northern Montana College				19		2		10		5	1										37	NA	NA	NA
NEW JERSEY																								
Cape May County Vocational-Technical Center				1		1		4		4				2							12	0	3	0
Newark College of Engineering			7		1	12			17						2	28			10		77	1	7	2
NEW YORK																								
Academy of Aeronautics	18																				18	0	0	1
Dutchess Community College								6													6	1	1	0
#R C A Institutes										400											400	5	NA	100
Westchester Community College								12													12	NA	NA	NA
NORTH CAROLINA																								
Davidson County Community College				4																	4	NA	NA	NA
Sandhills Community College				5																	5	NA	NA	NA
NORTH DAKOTA																								
North Dakota State School of Science			6			2		10	7	4											29	0	0	0
OHIO																								
Franklin University								1													1	NA	NA	NA
ITT Technical Institute-Toledo			11					19													30	NA	NA	NA
United Electronics Institute										190											190	NA	NA	NA
OKLAHOMA																								
Oklahoma State Tech-Okmulgee		48		125			23	58	79	75						69					477	NA	NA	NA
United Electronics Institute										70											70	NA	NA	NA
OREGON																								
Portland Community College				12																	12	NA	NA	NA

Technology or Pre-Engineering Degree Level - Certificate	AIRCRAFT	AIR CONDITIONING	ARCHITECTURAL	AUTOMOTIVE	CHEMICAL	CIVIL	COMPUTER	DRAFTING AND DESIGN	ELECTRICAL	ELECTRONIC	GENERAL	INDUSTRIAL TECHNOLOGY	MANUFACTURING	MARINE	MATERIALS, METALS	MECHANICAL	MINERAL	NUCLEAR	OTHER TECHNOLOGY	STUDENTS COMPLETING PRE-ENGINEERING PROGRAM	TOTAL TECHNOLOGY	WOMEN	U.S. NEGRO	FOREIGN
PENNSYLVANIA																								
Harrisburg Area Community College						7				3											10	0	0	0
Industrial Management Institute			20					14								15					49	2	1	0
Spring Garden College								6		15					9	10					40	0	10	NA
RHODE ISLAND																								
Rhode Island Junior College					3					1			5								9	NA	NA	NA
Rhode Island Radio and Electronics School										80											80	0	2	1
SOUTH CAROLINA																								
Tri-County Technical Education Center		16								10											26	NA	NA	NA
SOUTH DAKOTA																								
Lake Area Vocational-Technical School	16		12	54				16		18						16					132	NA	NA	NA
South Dakota State University						1		1													2	NA	NA	NA
TENNESSEE																								
Clarkesville Area Technical School										12						10					22	NA	NA	NA
TEXAS																								
Hill Junior College				5					3												8	0	0	0
South Plains College				10											3						13	NA	4	NA
Tarrant County Junior College	5	11	2	4			15	9		14									17		77	NA	NA	NA
United Electronics Institute										73											73	NA	NA	NA
UTAH																								
Utah Technical College-Provo								1													1	NA	NA	NA
Utah Technical College-Salt Lake City								1		1											2	NA	NA	NA
Weber State College				22															2		24	NA	NA	NA
VIRGINIA																								
Hampton Institute																7					7	0	4	0
WASHINGTON																								
Bellingham Vocational-Technical Institute				18		16				13						14					61	8	2	5
Highline Community College								7													7	0	0	1
J M Perry Institute		6		8					15	19						7					55	0	0	0
L H Bates Vocational-Technical Institute						12		27	10	11						7					67	NA	NA	NA
North Seattle Community College									11	83									15		109	NA	NA	NA
Seattle Central Community College				7															8		15	NA	NA	NA
WEST VIRGINIA																								
Fairmont State College								2		1						4			1		8	NA	NA	NA
United Electronics Institute										93											93	NA	NA	NA
WISCONSIN																								
Acme Institute of Technology								13													13	NA	NA	NA
Lakeshore Technical Institute										7											7	NA	NA	NA
Northeast Wisconsin Technical Institute				36																	36	NA	NA	NA
Rice Lake Vocational-Technical School			20													10					30	NA	NA	NA
Waukesha County Technical Institute										9					23						32	0	0	0
WYOMING																								
Western Wyoming College												13									13	NA	NA	NA
TOTAL	247	473	222	595	41	152	203	503	436	3283	2	58	6	2	68	244			233		6768	79	158	132

* - estimated by school

\# - on list of schools having at least one curriculum accredited by the Engineers Council for Professional Development

TABLE J

Technology or Pre-Engineering
Degree Level - Associate

	AIRCRAFT	AIR CONDITIONING	ARCHITECTURAL	AUTOMOTIVE	CHEMICAL	CIVIL	COMPUTER	DRAFTING AND DESIGN	ELECTRICAL	ELECTRONIC	GENERAL	INDUSTRIAL TECHNOLOGY	MANUFACTURING	MARINE	MATERIALS, METALS	MECHANICAL	MINERAL	NUCLEAR	OTHER TECHNOLOGY	STUDENTS COMPLETING PRE-ENGINEERING PROGRAM	TOTAL TECHNOLOGY	WOMEN	U.S. NEGRO	FOREIGN
ALABAMA																								
Alexander City State Junior College					4	2			2		1					1				10	20	0	0	0
ARIZONA																								
Arizona Western College				1				3		7	4	9				5				6	35	0	2	0
Cochise College	26							4		11											41	NA	1	2
#DeVry Institute of Technology										99											99	0	1	0
Glendale Community College							2	7		13										18	40	1	NA	NA
#Phoenix College						4		16		31										28	79	4	10	1
ARKANSAS																								
Hendrix College																				1	1	0	0	0
Southwest Technical Institute	8					2	12	4		9						8					43	NA	NA	NA
CALIFORNIA																								
Allan Hancock College			1	2						4						7			21	4	39	0	NA	NA
American River College						1	9	7		18										48	83	NA	NA	0
Antelope Valley College		3		1						7	1									12	24	NA	NA	NA
Canada College																				8	8	0	NA	NA
Cerritos College	1		6	16				5		11	34	29	1		2				1	8	114	NA	NA	NA
#City College of San Francisco			1		11	10		4		28		13				15					82	2	NA	NA
#Cogswell Polytechnical College						4				10						3					17	0	1	1
College of the Desert			3	4						1										3	11	0	0	0
College of the Redwoods				4				5		11					3				13		36	3	0	0
College of the Siskiyous					10	10	10	10		5										10	55	0	2	8
East Los Angeles College			35		2	1	5	35		13		9		1		34				13	148	9	NA	NA
El Camino College		6	12	11				20		24					6	3					82	1	NA	NA
Electronic Technical Institute										10											10	0	5	3
Fullerton Junior College			8	10		5		4		50		1				20				26	124	1	3	4
Grantham School of Engineering										3											3	NA	NA	NA
#Grossmont College (E)			2			2	3	5		5									5		22	NA	NA	NA
Humphreys College						3				3											6	0	0	0
Long Beach City College	47		17		3			10	3	14		24								35	153	NA	NA	NA
Los Angeles Valley College							5			6	5		4							2	22	NA	NA	NA
Menlo College																				5	5	0	0	3
National Technical School				98			11			36											145	0	19	66
#Northrop Institute of Technology	8									2											10	0	NA	NA
San Bernardino Valley College	11		6	7	1	3	14	13		20		4				2				28	109	NA	NA	NA
San Diego Evening College						23	13		1	6		1	4	2	9	5					64	0	0	0
San Diego Mesa College			5			13				28				5							51	1	NA	NA
San Joaquin Delta College						6		12											15	13	46	7	2	4
Santa Monica College			14					1		23			7								45	NA	NA	NA
Sierra College			4	3		2	1	4		8	30								32	7	91	NA	NA	NA
Southwestern College			10	8			16			25											59	2	0	0
Taft College								1		3	4	1				4				1	14	NA	NA	NA
Western States College of Engineering										9											9	0	1	3
Yuba Community College District				6		5	3	5	1		20									36	76	0	2	5
COLORADO																								
Fort Lewis College																				16	16	0	0	3
Lamar Community College										1											1	NA	NA	NA
Mesa College						4	12	8													24	NA	NA	NA
Northeastern Junior College				14		5				3										10	32	0	0	0
Southern Colorado State College		4				5				12			5			7				15	48	NA	NA	NA
CONNECTICUT																								
#Hartford State Technical College						77	29		39				10			39		10			204	6	1	2
#Norwalk State Technical College					7		30		16	37			7		16	29				74	216	7	4	0
#Thames Valley State Technical College					21		26		36				32			21					136	8	0	0
Ward Technical College									10	30											40	0	2	3
#Waterbury State Technical College					5		36		66				29		7	40					183	15	0	8
DELAWARE																								
Delaware Technical and Community College			3		2			3	4	15		2				9					38	1	1	2
DISTRICT OF COLUMBIA																								
Washington Technical Institute	3		2			5	25	9	5	31									18		98	10	81	17
FLORIDA																								
Broward Community College	10		1			7	8	4		25											55	NA	NA	NA
Chipola Junior College								1													1	0	0	0
Edison Community College						3															3	0	0	0

Technology or Pre-Engineering
Degree Level - Associate

	AIRCRAFT	AIR CONDITIONING	ARCHITECTURAL	AUTOMOTIVE	CHEMICAL	CIVIL	COMPUTER	DRAFTING AND DESIGN	ELECTRICAL	ELECTRONIC	GENERAL	INDUSTRIAL TECHNOLOGY	MANUFACTURING	MARINE	MATERIALS, METALS	MECHANICAL	MINERAL	NUCLEAR	OTHER TECHNOLOGY	STUDENTS COMPLETING PRE-ENGINEERING PROGRAM	TOTAL TECHNOLOGY	WOMEN	U.S. NEGRO	FOREIGN
FLORIDA (continued)																								
Florida Institute of Technology	20													58							78	NA	NA	NA
Florida Keys Community College										2										2	4	NA	NA	NA
Gulf Coast Community College		3				1	10	8		20				4						9	55	2	1	0
Lake Sumter Community College								3	4											5	12	0	0	0
Miami-Dade Junior College	94	4	44			16		5	4	47	176		5						26	46	467	18	NA	NA
Palm Beach Junior College		6	5			2	17	3		11										24	68	7	0	2
Pensacola Junior College								12		16		11				9				40	88	3	2	0
St. Johns River Junior College							6	4		8											18	1	0	0
#St. Petersburg Junior College										31						8				100*	139	1	0	0
Tallahassee Community College																				3	3	0	0	0
GEORGIA																								
Middle Georgia College																				33	33	0	0	0
#Southern Technical Institute			31			45			69				66			37		20			268	2	1	7
IDAHO																								
Lewis Clark State College								17													17	NA	NA	NA
#Ricks College				11						14						1			11		37	NA	NA	NA
ILLINOIS																								
Belleville Area College					2		40	5		19	4									9	79	17	6	0
Bradley University												6				1					7	0	NA	NA
Chicago Technical College			5			4			5							6					20	0	NA	NA
College of DuPage		4	19				21			22					1	11			40	30	148	6	0	0
#DeVry Institute of Technology										140											140	NA	NA	NA
Eastern Illinois University																				12	12	0	0	0
Highland Community College				6					4							8				8	26	0	0	0
Illinois Central College			7	8			19	1		8		10				17					70	2	NA	NA
Illinois College																				4	4	0	0	0
Illinois Valley Community College																				6	6	0	0	0
Industrial Engineering College													12								12	NA	NA	NA
#Institute of Drafting and Technology						20		62													82	0	0	0
Lake Land College			9	6		10	17	6		9									11	72	140	4	0	0
Loop College			4																		4	NA	NA	NA
Morton College										11											11	0	0	0
Olive-Harvey College			4		3	1	3			13									1	5	30	NA	NA	NA
Parkland College				6		8	13		9							5					41	11	5	2
Parks College of St. Louis University	28																				28	0	2*	0
Prairie State College			1				6	2		4						6				7	26	3	1	0
Sauk Valley College				6				1		5						1					13	0	0	0
Spoon River College				7		4	3					4							27		45	1	0	0
W R Harper College			21				18			22						8					69	9	0	0
Wright College			1				7	5		11										23	47	2	NA	NA
INDIANA																								
#Indiana University-Purdue University			28		2	8	69	2		50		12				33					204	NA	10*	3*
#Purdue University	67		34		1	46	59	17	88				36			86			15		459	22	41	NA
Tri-State College																24					24	0	1	0
IOWA																								
Clinton Community College			5						15												20	0	0	1
Des Moines Area Community College																				20	20	0	0	0
Iowa Central Community College										12											12	NA	NA	NA
#Iowa State University						23				36						22					81	0	0	0
Marshalltown Community College								7		4										5	16	0	0	0
Southeastern Community College				13				9		10										16	48	0	0	0
Southwestern Community College										6											6	0	0	0
Waldorf College								3												3	6	1	0	0
KANSAS																								
Fort Hays Kansas State College																				5	5	0	0	1
Kansas City Kansas Community College								4													4	0	0	0
Kansas Technical Institute	2					6	13			21						10					52	2	NA	1
Kansas Wesleyan																				1	1	0	0	0
KENTUCKY																								
Eastern Kentucky University								12		4										10	26	2	1	NA
Somerset Community College						5															5	0	0	0
Western Kentucky University									2							3					5	NA	NA	NA

Technology or Pre-Engineering
Degree Level - Associate

Institution	AIRCRAFT	AIR CONDITIONING	ARCHITECTURAL	AUTOMOTIVE	CHEMICAL	CIVIL	COMPUTER	DRAFTING AND DESIGN	ELECTRICAL	ELECTRONIC	GENERAL	INDUSTRIAL TECHNOLOGY	MANUFACTURING	MARINE	MATERIALS, METALS	MECHANICAL	MINERAL	NUCLEAR	OTHER TECHNOLOGY	STUDENTS COMPLETING PRE-ENGINEERING PROGRAM	TOTAL TECHNOLOGY	WOMEN	U.S. NEGRO	FOREIGN
LOUISIANA																								
Centenary College of Louisiana																				2	2	0	0	0
Delgado Junior College	34		6	11				13	28			1				12			34		139	1	NA	NA
Northwestern State University								2													2	NA	NA	NA
Sowela Technical Institute										15											15	NA	NA	NA
MAINE																								
Southern Maine Vocational Technical Inst			6	5					1	6		2		26		2					48	NA	0	0
MARYLAND																								
Anne Arundel Community College			7							8				1		2				3	21	1	0	0
#Capitol Institute of Technology										19											19	0	3	3
Catonsville Community College			13		2		18			18										8	59	1	7	1
Community College of Baltimore							5	11		26						4			6	10	62	NA	NA	NA
Hagerstown Junior College							15									1					16	1	NA	NA
Harford Community College				2		4	15			6										4	31	NA	NA	NA
Montgomery Community College			1							9	4									25	39	NA	NA	NA
Prince George's Community College						5		3		10						1				7	26	0	1	0
MASSACHUSETTS																								
Blue Hills Regional Technical Center						16			9	8											33	1	0	0
Bristol Community College						8			6	10						5					29	0	0	0
Chamberlayne Junior College							2														2	0	0	1
Dean Junior College			5																		5	NA	NA	NA
#Franklin Institute of Boston			26		6	17			12	45						15					121	2	4	6
Greenfield Community College						13							3								16	0	0	2*
#Lowell Technological Institute					5	40	5		1	28		6				12			3		100	NA	NA	NA
Massasoit Community College										7						11					18	NA	NA	NA
Mount Wachusett Community College										7	2					12					21	0	0	0
Northeastern University-Lincoln College						15	2		27	37						50					131	0	NA	0
Northern Essex Community College							9			12									10	9	40	3	0	2
North Shore Community College									21												21	0	0	0
Quinsigamond Community College						1				11						2				9	23	NA	NA	NA
#Wentworth Institute	42		77			147			30	167			25			103		2			593	0	NA	7
Worcester Junior College																				101	101	0	1	7
MICHIGAN																								
Alpena Community College					1	8		7		8		2							7		33	NA	NA	NA
Bay de Noc Community College				35				20	25			10									90	0	0	0
Calvin College																				20	20	0	0	0
Delta College			6	9	2		8			13						18				17	73	7	6	8
Lake Michigan College								17	4	6		1	3		2	1					34	NA	NA	NA
#Lake Superior State College							5	3		5						6					19	0	NA	NA
Lansing Community College			4			17		4		7						17			1	14	64	0	0	0
Macomb County Community College		16	7	30		4	45	25	41		4					80			29		281	NA	NA	NA
#Michigan Technological University						35			35										27		97	NA	NA	NA
Monroe County Community College			6	5				7		9		2	4								33	0	0	0
Northern Michigan University												1							7		8	NA	0	0
Northwestern Michigan College																				7	7	0	0	1
Southwestern Michigan College	6			9				8				12									35	NA	NA	NA
MINNESOTA																								
Anoka-Ramsey State Junior College										9						7					16	0	0	0
Austin State Junior College																				9	9	0	0	0
Fergus Falls State Junior College																				4	4	0	0	0
Mesabi State Junior College																				11	11	2	0	0
Metropolitan State Junior College																				3	3	0	0	0
Northland State Junior College																				8	8	0	0	1
#Rochester State Junior College						13				10						9				4	36	0	0	0
Southwest Minnesota State College								3		9						13				4	29	0	0	0
Vermilion State Junior College																				5	5	0	0	0
Willmar Area Vocational Technical Inst								15		28											43	0	0	0
MISSISSIPPI																								
East Central Junior College																				6	6	0	0	0
Holmes Junior College							10	2			4									10	26	3	0	0
Meridian Junior College							7			12											19	5	2	0
Mississippi Gulf Coast Junior College							2	6		5											13	NA	NA	NA
Northeast Mississippi Junior College						3		2		5										2	12	0	0	0
Northwest Mississippi Junior College						6		7		10						1				8	32	0	0	0

Technology or Pre-Engineering Degree Level - Associate	AIRCRAFT	AIR CONDITIONING	ARCHITECTURAL	AUTOMOTIVE	CHEMICAL	CIVIL	COMPUTER	DRAFTING AND DESIGN	ELECTRICAL	ELECTRONIC	GENERAL	INDUSTRIAL TECHNOLOGY	MANUFACTURING	MARINE	MATERIALS, METALS	MECHANICAL	MINERAL	NUCLEAR	OTHER TECHNOLOGY	STUDENTS COMPLETING PRE-ENGINEERING PROGRAM	TOTAL TECHNOLOGY	WOMEN	U.S. NEGRO	FOREIGN
MISSOURI																								
#Central Institute of Technology										37											37	0	0	0
Central Missouri State University	2	2	5	4				9	1										2		25	0	2	NA
#Florissant Valley Community College						5			10	14			2			19				13	63	NA	NA	NA
Forest Park Community College				7						7						8				12	34	0	6	1
ITT Bailey Technical School			7					7													14	0	1	0
Jefferson College			3	5		6		3		5						1			2	2	27	0	0	0
Mineral Area College						5		6	6			3									20	0	0	0
Missouri Southern State College				3			20	4													27	6	0	0
Penn Valley Community College								3													3	NA	NA	NA
MONTANA																								
Northern Montana College										9	6									3	18	NA	NA	NA
NEBRASKA																								
Nebraska Technical College		30	70	143		21	26		14	49			19			19			18		409	4	0	2
Nebraska Western College				12															5		17	0	0	0
University of Nebraska-Curtis						8															8	NA	NA	NA
Western Nebraska Technical College	16		8	14				4	10	6									39		97	2	0	0
NEVADA																								
Elko Community College				1						4									5		10	3	0	1
#University of Nevada-Reno			6					3		5											14	0	0	0
NEW HAMPSHIRE																								
#New Hampshire Technical Institute									5	37						28					70	0	0	0
New Hampshire V-T Coll-Manchester		16		15				12	13	15		8				6					85	0	0	0
New Hampshire V-T Coll-Portsmouth				17				19		15						12					63	0	1	1
NEW JERSEY																								
Atlantic Community College										7											7	0	0	0
Burlington County College							8	2		4										3	17	1	NA	NA
County College of Morris					3					14						15					32	NA	NA	NA
Mercer County Community College			24			27		15	12	23						4				7	112	2	6	1
#Middlesex County College						14	37		31							16				6	104	8	0	0
Ocean County College						6			9												15	0	0	0
Union College																				76	76	2	0	0
Union County Technical Institute					6	16	27		11	19						12					91	7	7	NA
NEW MEXICO																								
#Eastern New Mexico University						3		2		2											7	NA	NA	NA
New Mexico Junior College				2			11	2		2											17	NA	NA	NA
#New Mexico State University						7				12						9					28	0	2	NA
NEW YORK																								
#Academy of Aeronautics	127							34		35			24								220	1	15	24
Adelphi University																				2	2	0	0	0
Adirondack Community College			9																	7	16	0	0	0
Auburn Community College					3		20		10										3	7	43	9	NA	NA
#Bronx Community College					4				35							14			3	28	84	NA	NA	NA
#Broome Community College					11	16			32			10				35				38	142	NA	NA	NA
Dutchess Community College			5						23							11				8	47	0	2	0
#Erie Community College					20	93			57				35		30	60				26	321	5*	3*	2*
Fulton-Montgomery Community College									11												11	0	0	0
Hamilton College																				1	1	0	0	0
Hobart and William Smith Colleges																				1	1	0	0	0
#Hudson Valley Community College		14		15	15	85			80							60					269	20	4	6
Jefferson Community College																				5	5	0	0	0
#Mohawk Valley Community College						43			55							42				24	164	1	1	1
Monroe Community College						14	31			30						29			16	11	131	11	1	1
Nassau Community College						12				3		15								29	59	NA	NA	NA
New York City Community College			14	12	30	74		24	13	97			10			34			15		323	2	NA	NA
Niagara County Community College					2		26			18						8					54	6	1	0
Orange County Community College			11		1				25							9				9	55	0	0	0
#Queensborough Community College							26			69						22				40	157	0	NA	NA
Rockland Community College																				2	2	0	0	0
St. Lawrence University																				2	2	0	0	0
#State University of New York-Alfred		20	36			64		27	24			22				36			69		298	0	0	0
#State University A & T College-Canton		12		15		33			11	12						22				16	121	0	2	5*
State University A & T College-Delhi			16			27													43	21	107	2	0	0
#State University A & T College-Farmingdale	65	9	26	20	12	6			46							37			15	35	271	NA	NA	NA
Staten Island Community College						12			48							21				15	96	0	NA	6
Wagner College																				2	2	0	0	0

Technology or Pre-Engineering Degree Level - Associate	AIRCRAFT	AIR CONDITIONING	ARCHITECTURAL	AUTOMOTIVE	CHEMICAL	CIVIL	COMPUTER	DRAFTING AND DESIGN	ELECTRICAL	ELECTRONIC	GENERAL	INDUSTRIAL TECHNOLOGY	MANUFACTURING	MARINE	MATERIALS, METALS	MECHANICAL	MINERAL	NUCLEAR	OTHER TECHNOLOGY	STUDENTS COMPLETING PRE-ENGINEERING PROGRAM	TOTAL TECHNOLOGY	WOMEN	U. S. NEGRO	FOREIGN
NEW YOPK (continued)																								
Westchester Community College					4	34			38							16				17	109	1	1	5
NORTH CAROLINA																								
Asheville-Buncombe Technical Institute					3	3		12		9						8					35	0	3	0
Catawba Valley Technical Institute			12				20	12		17									19		80	3	1	0
Central Piedmont Community College			6		3	11			8	19			5			11					63	2	2	NA
Chowan College																				15	15	1	0	0
College of the Albemarle								11		3											14	0	6	0
Davidson County Community College									7							11				3	21	2	2	NA
Durham Technical Institute										8						8					16	0	1	0
#Fayetteville Technical Institute		5				17				16						8			10		56	3	4	0
#Forsyth Technical Institute			12					8		9			8								37	NA	6	0
#Gaston College					2	23			5	10			14			16				16	86	0	0	6
Randolph Technical Institute										4											4	NA	NA	NA
Richmond Technical Institute							5	5		3											13	0	0	0
Rowan Technical Institute								6		10			3						12		31	1	1	NA
Sandhills Community College						2														20	22	NA	NA	NA
Surry Community College								3		6										4	13	0	0	0
#Technical Institute of Alamance		3			5		28	7		8											51	NA	NA	0
Wayne Community College								7		9											16	0	2	0
Western Carolina University																				4	4	0	0	0
Wilkes Community College			9	11			8					6									34	NA	4	NA
Wilson County Technical Institute		11		7				7		5			7								37	0	1	0
NORTH DAKOTA																								
North Dakota State School of Science		20	44			21	24	9	65	47										5	235	0	0	0
OHIO																								
Clark Technical College						16			18							15					49	0	2	1
Columbus Technical Institute	47		20			13				52						22					154	0	6	0
Cuyahoga Community College			21							41						23				11*	96	1	9	1
Franklin University Technical College								18		7											25	0	1	1
Hocking Technical College							13		12			4				3			8		40	NA	NA	NA
ITT Technical Institute-Dayton			62										86								148	2	3	NA
Kent State University-Ashtabula Campus									11				1			6					18	0	0	0
Lakeland Community College						1	21		16		3					7					48	10	NA	NA
Lorain County Community College					6	8	37	9	25			1				13					99	15	NA	NA
Miami University							4					16							1		21	0	NA	NA
North Central Technical College							24		2	13		5				5					49	0	1	0
#Ohio College of Applied Science			13		6	12			17	32						38					118	2	5	4
#Ohio Institute of Technology (E)										125											125	NA	NA	NA
Owens Technical College						1	2			10						6					19	0	1	0
#Sinclair Community College			1				6	1		13						12					33	1	4	NA
Stark Technical College									15							11					26	0	2	0
#University of Akron Technical College					6	7				37		24				23			1		98	1	2	1
#University of Dayton					9					22		12				36					79	NA	NA	NA
University of Toledo Technical College			6		4	18	38	4		15	20	3				16					124	NA	NA	NA
OKLAHOMA																								
Cameron College							12	6		10											28	2	0	0
Eastern Oklahoma State College				5	4	2	15	5		9					4	6			28	20	98	11	4	1
Northern Oklahoma College							6	5		4						2				6	23	2	0	1
Oklahoma State University-Oklahoma City						4	12	9		33		7							24		89	NA	13	2
#Oklahoma State University-Stillwater	17					9		27		15						4		2	24		98	2	2	2
OREGON																								
#Blue Mountain Community College						9				6											15	0	0	0
Chemeketa Community College						9		22		15			7			4			26		83	0	0	0
Mount Hood Community College			2	9	1	13		6		20				7		6			26	5	95	NA	2	NA
#Oregon Technical Institute				62		54		14	28	48		21				18			19		264	46	NA	3
Portland Community College	10		10	9		10	17			28						55					139	3	NA	NA
Reed College																				1	1	0	0	1
Umpqua Community College				9		17	3													8	37	1	NA	NA
PENNSYLVANIA																								
Bucks County Community College							5			7											12	NA	NA	NA
Butler County Community College			8				6	11		20											45	5	1	0
Dean Institute of Technology			10			5		6	23						3	34					81	NA	NA	NA
Electronics Institute								5		31											36	0	0	0
Harrisburg Area Community College			15			13	3	4		20										22	77	1	0	0
Industrial Management Institute												33									33	3	2	3
King's College																				1	1	0	0	0
Lehigh County Community College					6	12	20			24						14					76	7	0	2

Technology or Pre-Engineering Degree Level - Associate

	AIRCRAFT	AIR CONDITIONING	ARCHITECTURAL	AUTOMOTIVE	CHEMICAL	CIVIL	COMPUTER	DRAFTING AND DESIGN	ELECTRICAL	ELECTRONIC	GENERAL	INDUSTRIAL TECHNOLOGY	MANUFACTURING	MARINE	MATERIALS, METALS	MECHANICAL	MINERAL	NUCLEAR	OTHER TECHNOLOGY	STUDENTS COMPLETING PRE-ENGINEERING PROGRAM	TOTAL TECHNOLOGY	WOMEN	U.S. NEGRO	FOREIGN
PENNSYLVANIA (continued)																								
Lincoln University																				1	1	0	1	0
Luzerne County Community College			11							11						6					28	NA	NA	NA
Lycoming College																				1	1	0	0	0
Penn Technical Institute										213											213	NA	NA	NA
#Pennsylvania State University					22	57	36		309						11	334	21	13	6		809	NA	NA	NA
Philco-Ford Technical Institute										37											37	0	0	6
Point Park College								3		4						7					14	0	NA	NA
Ryder Technical Institute										144											144	0	2	0
#Spring Garden College						18	7			23			24			13					85	4	2	4
#Temple University			46		8					34					2	46					136	1	12	NA
RHODE ISLAND																								
Rhode Island Junior College					8		26	5		18		1	3			5			9	8	83	10	NA	NA
SOUTH CAROLINA																								
#Midlands Technical Education Center			19			23			6	21		6				15					90	NA	NA	NA
Sumter Area Technical Education Center						14													10		24	6	1	1
Tri-County Technical Education Center						5		13		15		9									42	1	4	0
York Technical Education Center							3	11		11		13							7		45	13	4	0
SOUTH DAKOTA																								
Augustana College																				4	4	0	0	2
University of South Dakota-Springfield				54		20		17		21			3								115	0	0	0
TENNESSEE																								
#Chattanooga State Technical Institute					9	4	12		3	30						9		8	14		89	12*	0	4
Columbia State Community College						10	16			7									7	8	48	NA	2	0
#State Technical Institute at Memphis			11		1	12	8		7	20						12			1		72	50	25	0
TEXAS																								
Alvin Junior College							5	7		3											15	NA	NA	0
Austin College																				1	1	0	0	0
Baylor University																				2	2	0	0	0
#Del Mar College		6							9	27									2	16	60	0	1	1
Frank Phillips College																				6	6	0	0	0
Grayson County College				7				8		6					8						29	NA	NA	NA
Hill Junior College																				10	10	0	0	0
Lee College					1		2	3	1	12		2							2	5	28	2	1	0
Lon Morris College																				3	3	0	1	0
San Antonio College		2					69	11		15											97	NA	NA	NA
South Plains College							14	9													23	5	NA	NA
South Texas Junior College																				18	18	0	2	6
Temple Junior College		1					20	2												3	26	5	1	0
Texas State Technical Institute	4	22	29	20	8	16	18	20	8	27									30		202	NA	NA	NA
University of Houston						5		1		2			2								10	NA	NA	NA
#University of Texas-Arlington	9					8			60							20					97	0	2	NA
Wharton County Junior College				12	5		9	10		13			4						10	8	71	NA	8	NA
UTAH																								
#Brigham Young University										6			2								8	NA	NA	NA
Snow College																				15	15	1	0	0
University of Utah					2	1		14		14			1			6					38	0	1	1
Utah Technical College-Provo								8													8	NA	NA	NA
Utah Technical College-Salt Lake City			14					16		35											65	1	NA	1
#Weber State College				1			5	6		16											28	6	NA	NA
VERMONT																								
Middlebury College																				1	1	0	0	0
#Vermont Technical College			18			26			17	37						22			34		154	3	0	1
VIRGINIA																								
D S Lancaster Community College								9		6		1							16		32	0	1	0
George Mason University																				9	9	0	0	1
John Tyler Community College			5							7		7				7				2	28	0	1	0
Northern Virginia Community College			4			9				28						6				9	56	NA	NA	NA
#Old Dominion University								9		6											15	0	0	0
Tidewater Community College							5	13													18	3	4	0
Virginia Commonwealth University		8				13		29		28											78	NA	NA	NA
Wytheville Community College						7		4				1							3	7	22	0	1	0

Technology or Pre-Engineering
Degree Level - Associate

	AIRCRAFT	AIR CONDITIONING	ARCHITECTURAL	AUTOMOTIVE	CHEMICAL	CIVIL	COMPUTER	DRAFTING AND DESIGN	ELECTRICAL	ELECTRONIC	GENERAL	INDUSTRIAL TECHNOLOGY	MANUFACTURING	MARINE	MATERIALS, METALS	MECHANICAL	MINERAL	NUCLEAR	OTHER TECHNOLOGY	STUDENTS COMPLETING PRE-ENGINEERING PROGRAM	TOTAL TECHNOLOGY	WOMEN	U.S. NEGRO	FOREIGN
WASHINGTON																								
Centralia College						11				7										6	24	0	0	0
Edmunds Community College												22									22	1	NA	NA
Green River Community College						7		15		18						7			43	15	105	0	0	0
Highline Community College						6						1		19		10				15	51	2	0	2
Lower Columbia College				8			10	6		6		4				5				10	49	NA	NA	NA
North Seattle Community College								8	3	25											36	NA	NA	NA
Olympia Vocational-Technical Institute						4															4	0	0	0
Pacific Lutheran University																				2	2	0	0	0
Seattle Central Community College					2		23	13				5		4					5		52	NA	NA	NA
Shoreline Community College			10*		2*	9				30*						3*			20*	24*	98	4*	0	5*
Skagit Valley College				8				6		16										12	42	NA	NA	NA
Walla Walla College				1																	1	0	0	0
Yakima Valley College						17	6			14											37	2	0	0
WEST VIRGINIA																								
Bluefield State College			7			10	4		20	3						5	2				51	1	3	0
Potomac State College							11	4											3	6	24	NA	NA	NA
West Virginia Institute of Technology						17		13	26							19					75	1	3*	0
WISCONSIN																								
Gateway Technical Institute				2		4	1	8		12			5						8		40	0	NA	0
Lakeshore Technical Institute										9						14					23	1	NA	NA
Mid State Technical Institute						12										6			8		26	2	0	0
Milwaukee Area Technical College		12	17		10	7			67		29					50	5		7		204	2	NA	2
#Milwaukee School of Engineering		11	23	16	6		24		8	40		17			6	17					168	0	NA	15
Moraine Park Technical Institute								12				18									30	0	0	0
North Central Technical Institute			24	23				13		27											87	0	0	0
Northeast Wisconsin Technical Institute			27			25	15	18		8											93	6	NA	NA
St. Norbert College																				3	3	0	0	0
Waukesha County Technical Institute								11		15											26	0	0	0
Western Wisconsin Technical Institute		5		7			9	14	5	7									23		70	NA	NA	NA
WYOMING																								
Casper College				4			5	3		11									3	7	33	4	NA	NA
Central Wyoming College																				3	3	NA	NA	NA
Sheridan College						2														5	7	0	0	1
Western Wyoming College												3									3	NA	NA	NA
PUERTO RICO																								
University of Puerto Rico			25			50				33						29					137	5	NA	9
TOTAL	704	255	1293	914	340	2123	1673	1330	2055	4416	351	473	518	127	110	2651	28	55	1064	2098	22578	592	464	338

(E) - estimated by EMC
* - estimated by school
# - on list of schools having at least one associate level curriculum accredited by the Engineers Council for Professional Development

Technology or Pre-Engineering
Degree Level - BACHELORS

	AIRCRAFT	AIR CONDITIONING	ARCHITECTURAL	AUTOMOTIVE	CHEMICAL	CIVIL	COMPUTER	DRAFTING AND DESIGN	ELECTRICAL	ELECTRONIC	GENERAL	INDUSTRIAL TECHNOLOGY	MANUFACTURING	MARINE	MATERIALS, METALS	MECHANICAL	MINERAL	NUCLEAR	OTHER TECHNOLOGY	STUDENTS COMPLETING PRE-ENGINEERING PROGRAM	TOTAL TECHNOLOGY	WOMEN	U.S. NEGRO	FOREIGN
ALABAMA																								
Tuskegee Institute												14									14	0	14	0
ARIZONA																								
Arizona State University	49							25		52		3	7						3		139	1	NA	NA
#DeVry Institute of Technology										26											26	1	0	0
CALIFORNIA																								
California State Poly U-Pomona																			4		4	0	0	0
#California State Poly U-San Luis Obispo		13								49		92	2			17			4		177	0	NA	9
California State University-Fresno			19										83								102	0	0	6
California Statr University-Long Beach												171									171	2	3	5
California State University-San Jose												44									44	NA	NA	NA
Northrop Institute of Technology	83																				83	0	NA	NA
COLORADO																								
Southern Colorado State College						8				7			4		3	6					28	0	1	1
FLORIDA																								
Embry-Riddle Aeronautical University	8																				8	0	0	2
Florida A & M University			1			1	7	5		6									15		35	2	11	2
University of South Florida													31								31	0	1	1
GEORGIA																								
Georgia Southern College													47								47	0	0	0
Southern Technical Institute			34			40			38				53			40			3		208	1	0	3
ILLINOIS																								
Bradley University						36			20							36					92	1	NA	NA
#DeVry Institute of Technology										191											191	NA	NA	NA
Eastern Illinois University												13									13	0	NA	NA
Industrial Engineering College													18								18	NA	NA	NA
Southern Illinois University						38			25			128				17					208	1	2	9
INDIANA																								
#Indiana University-Purdue University						17	14			18						17			15		81	0	3*	1*
#Purdue University	15					37	4		59			130	5			51					301	0	2	NA
KANSAS																								
Kansas State College of Pittsburg			39	82				48		17			11						20		217	NA	NA	NA
Kansas State Teachers College												8									8	NA	NA	NA
KENTUCKY																								
Eastern Kentucky University												34									34	0	1	0
Western Kentucky University						9			10							6			3		28	0	1	1
LOUISIANA																								
Louisiana State University-Baton Rouge												38									38	NA	NA	NA
Northwestern State University										21		24									45	NA	NA	NA
Southern University		5								29									2		36	0	33	3
MARYLAND																								
#Capitol Institute of Technology										57											57	1	8	5
University of Maryland													42								42	0	4	1
MASSACHUSETTS																								
Central New England College of Technology											4										4	0	0	0
#Lowell Technological Institute					3	3				18		1				15					40	NA	NA	NA
#Northeastern University-Lincoln College						4			36							26					66	0	NA	0
Southeastern Massachusetts University						10			9							14					33	0	0	0
MICHIGAN																								
Lake Superior State College										2						12					14	0	NA	NA
Northern Michigan University												13									13	NA	0	0
Western Michigan University	59			61					64			42			9	56			14		305	NA	NA	NA

Technology or Pre-Engineering
Degree Level - BACHELORS

	AIRCRAFT	AIR CONDITIONING	ARCHITECTURAL	AUTOMOTIVE	CHEMICAL	CIVIL	COMPUTER	DRAFTING AND DESIGN	ELECTRICAL	ELECTRONIC	GENERAL	INDUSTRIAL TECHNOLOGY	MANUFACTURING	MARINE	MATERIALS, METALS	MECHANICAL	MINERAL	NUCLEAR	OTHER TECHNOLOGY	STUDENTS COMPLETING PRE-ENGINEERING PROGRAM	TOTAL TECHNOLOGY	WOMEN	U.S. NEGRO	FOREIGN
MINNESOTA																								
Southwest Minnesota State College								3		9						9					21	0	0	0
MISSISSIPPI																								
Mississippi State University										13		35		6					17		71	0	0	0
MISSOURI																								
Central Institute of Technology										10											10	0	0	1
Central Missouri State University	11			2				17		12		14				2			8		66	0	6	NA
Southeast Missouri State University												22									22	0	0	0
MONTANA																								
Northern Montana College				13				1		6											20	NA	NA	NA
NEBRASKA																								
Kearney State College												6									6	0	0	0
NEW JERSEY																								
Fairleigh Dickinson University											83										83	NA	NA	NA
NORTH CAROLINA																								
University of North Carolina-Charlotte						6	15									12					33	0	1	0
OHIO																								
Bowling Green State University												6									6	0	0	0
Franklin University											18										18	1	1	NA
Miami University							78				50								26		154	0	NA	NA
Ohio University												75									75	NA	NA	NA
University of Akron										32						9					41	NA	1	NA
#University of Dayton											126										126	NA	NA	NA
OKLAHOMA																								
Oklahoma State University-Stillwater	17					6		19		14	3					7		5	7		78	2	3	4
OREGON																								
#Oregon State University						34			11				14			19					78	0	0	1
#Oregon Technical Institute				42		48		1	21	28						35					175	7	1	6
PENNSYLVANIA																								
Pennsylvania State University-Capitol Cmps			19						58							26			36		139	1	1	0
Point Park College										5						22					27	0	NA	NA
Spring Garden College						28				56						35					119	1	5	3
Temple University			7			5			18							9					39	NA	1	NA
SOUTH CAROLINA																								
Clemson University																			9		9	0	0	0
South Carolina State College						8			3							3					14	0	14	0
TENNESSEE																								
Austin Peay State University												1									1	NA	NA	NA
East Tennessee State University												59									59	0	0	2
#Memphis State University			26			13		11		6			27						3		86	0	NA	NA
Tennessee Technological University												73									73	0	0	1
TEXAS																								
LeTourneau College									10							18			5		33	0	0	0
Texas A & M University						6	5	3		5		79				6					104	1	4	2
Texas State Technical Institute	2		5	5	3	1	3		4	10									12		45	NA	NA	NA
#University of Houston		6				31		16	11	96			16								176	NA	NA	NA
UTAH																								
#Brigham Young University			6					28		16			26								76	NA	NA	5
Weber State College				13			33			16			15								77	1	0	2

Technology or Pre-Engineering
Degree Level - BACHELORS

	AIRCRAFT	AIR CONDITIONING	ARCHITECTURAL	AUTOMOTIVE	CHEMICAL	CIVIL	COMPUTER	DRAFTING AND DESIGN	ELECTRICAL	ELECTRONIC	GENERAL	INDUSTRIAL TECHNOLOGY	MANUFACTURING	MARINE	MATERIALS, METALS	MECHANICAL	MINERAL	NUCLEAR	OTHER TECHNOLOGY	STUDENTS COMPLETING PRE-ENGINEERING PROGRAM	TOTAL TECHNOLOGY	WOMEN	U.S. NEGRO	FOREIGN
WASHINGTON																								
Central Washington State College												11									11	NA	NA	NA
Walla Walla College												17									17	0	0	1
Western Washington State College												35									35	1	0	0
WEST VIRGINIA																								
Bluefield State College			2			2			4	2						5					15	0	0	0
Fairmont State College								10		6		3				11			5		35	NA	NA	NA
WISCONSIN																								
#Milwaukee School of Engineering									31							41					80	NA	NA	NA
University of Wisconsin-Platteville												52									52	0	2	5
University of Wisconsin-Stout										26			43						12		81	1	1	4
TOTAL	244	24	166	218	6	391	159	187	432	861	284	1243	444	6	12	582		5	223		5487	28	125	86

* - estimated by school
\# - on list of schools having at least one bachelors level curriculum accredited by the Engineers Council for Professional Development

TABLE L

Technology or Pre-Engineering
Degree Level - POST-BACHELORS

	AIRCRAFT	AIR CONDITIONING	ARCHITECTURAL	AUTOMOTIVE	CHEMICAL	CIVIL	COMPUTER	DRAFTING AND DESIGN	ELECTRICAL	ELECTRONIC	GENERAL	INDUSTRIAL TECHNOLOGY	MANUFACTURING	MARINE	MATERIALS, METALS	MECHANICAL	MINERAL	NUCLEAR	OTHER TECHNOLOGY	STUDENTS COMPLETING PRE-ENGINEERING PROGRAM	TOTAL TECHNOLOGY	WOMEN	U.S. NEGRO	FOREIGN
KANSAS Kansas State College of Pittsburg												34									34	NA	NA	NA
KENTUCKY Eastern Kentucky University												3									3	NA	NA	NA
LOUISIANA Northwestern State University										7											7	NA	NA	1
MARYLAND University of Maryland													12								12	NA	NA	NA
MICHIGAN Western Michigan University									3			3							2		8	NA	NA	NA
MISSOURI Central Missouri State University		1								1											2	0	0	0
WISCONSIN University of Wisconsin-Stout												3									3	NA	NA	NA
TOTAL		1							3	8		43	12						2		69	0	0	1

Notes on Technology Degrees

Technology curricula have so many different titles that is is impossible to list them all. In general, curricula have been grouped under the common heading to which they appear to be most closely related - Building Construction in included under Architectural, Electromechanical under Electrical, Tool under Manufacturing, etc. In some instances it has been necessary to make arbitrary assignment between related fields such as Mechanical and Manufacturing, or Civil and Architectural Technology. In order to distinguish Industrial Engineering Technology from Industrial Technology programs, the former are arbitrarily listed under Manufacturing. Some listed as Industrial Technology appear to be more properly described as Industrial Arts or Industrial Education. In a few cases the qualification of curricula as Engineering Technology or Industrial Technology may be marginal, as EMC is unable to evaluate the content of those curricula that are not accredited by ECPD.

Many curricula listed as Certificate programs are of unknown quality and may not be equivalent to Associate-Degree programs, although any that were clearly not of at least two-years' duration have been excluded from the tabulation.

The following degrees reported by ECPD schools only are included under the category of "All Other Technology" in the main data tables:

		Cert.	Assoc.	Bach.
Cal Poly San Luis Ob	Welding	-	-	4
So Tech Inst	Textile E. T.	-	20	3
Indiana-Purdue	Supervision	-	-	15
Purdue	Foundry T.	-	2	-
Purdue	Ind. Illustration T.	-	13	-
Lowell Tech	Mathematics	-	3	-
Michigan Tech	Forest T.	-	27	-
SUNY Farmingdale	Photographic T.	-	15	-
Fayetteville Tech Inst	Environmental	-	10	-
U Akron	Instrumentation	-	1	-
Okla St U-Okla City	Fire Protection	-	11	-
Okla St U-Okla City	Instrumentation	-	1	-
Okla St U-Okla City	Biomedical Elex	-	12	-
Okla St U-Stillwater	Fire Protection	-	18	-
Okla St U-Stillwater	Petroleum	-	6	-
Oregon Tech Inst	Environmental Health	-	19	-
Penn St U	Transportation	-	-	17
Penn St U	Water Resources	-	-	19
Penn St U	Air Polluttion Control	-	6	-
Chattanooga St	Instrumentation	-	3	-
Chattanooga St	Management Info.	-	11	-
Memphis St U	Industrial Safety	-	-	1
Memphis St U	Forest Products	-	-	2
St Tech Inst at Memphis	Instrumentation	-	1	-
Del Mar Coll	Instrument E. T.	-	2	-
Weber St	Machine Tool	2	-	-
Vermont Tech Coll	Agricultural	-	34	-

E N G I N E E R S   J O I N T   C O U N C I L

MEMBER SOCIETIES

American Society of Civil Engineers
American Institute of Mining, Metallurgical and Petroleum Engineers
American Society of Mechanical Engineers
American Society for Engineering Education
American Society for Testing and Materials
American Society of Agricultural Engineers
American Institute of Consulting Engineers
American Society for Metals
Society of Manufacturing Engineers
Society for Experimental Stress Analysis
Instrument Society of America
American Society for Quality Control
American Institute of Industrial Engineers
Society of Fire Protection Engineers
American Institute of Plant Engineers
American Association of Cost Engineers

ASSOCIATE SOCIETIES

Air Pollution Control Association
National Institute of Ceramic Engineers
American Society for Nondestructive Testing
Society of Packaging and Handling Engineers
International Material Management Society
Society of Women Engineers
Society for the History of Technology
Society of Aeronautical Weight Engineers
American Concrete Institute
Society of American Military Engineers
Western Society of Engineers
Louisiana Engineering Society
Washington Society of Engineers
Engineering Societies of New England
South Carolina Society of Engineers
Los Angeles Council of Engineers and Scientists
Hartford Engineers Club
International Material Management Society (New Jersey Chapter)
Cleveland Engineering Society
Danville Engineers Club