

THE UNIVERSITY OF MICHIGAN
INDUSTRY PROGRAM OF THE COLLEGE OF ENGINEERING

ANNUAL REPORT OF ENGINEERING PLACEMENT

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ENGINEERING PLACEMENT

July 15, 1962 - July 16, 1963

The placement situation for our graduates this year was characterized principally by its similarity to the preceding year. Demand continued to increase, as evidenced by a substantial increase in both the number of employers and the number of recruiting visits which they arranged to the College, and by an increase in starting salaries approximately equal to that experienced last year. The supply of graduates continued to decrease in total, although Industrial, Civil, and a few of the smaller programs showed increases and Chemical held even with last year. The combined effect of these two trends was a distinct increase in the intensity of recruiting effort, and this was still further augmented by an evidently increasing emphasis on quality selection. Evidence of this is found in the increasing proportion of employers who availed themselves of the opportunity to review student credentials in the placement office with a view to contacting selected candidates prior to their interview visit, and in the increasingly professional nature of employer representatives.

The bulk of both the volume and intensity of demand continued to come from the large aircraft, space, electrical and chemical companies, and more than one-half of our graduates left the Midwest to start work in other parts of the country. There was a small increase, however, in the proportion staying in Michigan, and a substantial increase in the proportion going to the East Coast at the expense of the West Coast.

As of mid-May, advanced bookings for interview visits during the coming year were up nearly 30% compared to the same time last year, indicating that the recruiting pressure will probably continue to increase.

NUMBER OF GRADUATES

PROGRAM	B.S.*			M.S.			Professional			Ph.D.		TOTAL IN EACH CLASS			TOTAL IN EACH PROG.	% IN EACH PROG.
	Aug '62	Feb '63	Jun '63	Aug '62	Feb '63	Jun '63	Aug '62	Feb '63	Jun '63	Feb '63	Jun '63	Aug '62	Feb '63	Jun '63		
Aero. & Astro.	8	21	19	10	7	20			2			18	30	39	87	9
Chemical	1	18	20	7	7	19				11	4	8	36	43	87	9
Civil	9	18	30	20	12	18				3	3	29	33	51	113	12
Electrical	21	40	67		26	25			1	5	3	21	72	95	188	20
Engrg. Math.	4	20	31	4								8	20	31	59	6
Engrg. Mech.	1	4	1		8	8					2	1	12	11	24	3
Engrg. Physics	2	1	14	8								10	1	14	25	3
Industrial	14	18	32	15	7	9	1			1	2	30	26	43	99	10
Instrumentation						7				2	2		2	9	11	1
Materials		1	1		1							14	2	1	17	2
Mechanical	19	46	38	14	8	13				2	2	22	56	53	131	14
Metallurgical	1	5	8	3	3	6				3	3	1	11	17	29	3
Meteorology		1		1								1	1		2	0
Nav. Arch. & Mar.		2	12	6	3	6						6	5	18	29	3
Nuclear					4	6				5	1		9	7	16	2
Science	6	4	16									6	4	16	26	3
TOTALS IN EACH CLASS	86	199	289	88	86	137	1	3	0	32	22	175	320	448	943	100%
% IN EACH CLASS	15	35	50	28	28	44	25	75	0	59	41	19	34	47		
TOTALS AT EACH DEGREE LEVEL		574			311			4		54			943			
% AT EACH DEGREE LEVEL		61%			33%			0%		6%			100%			

* Includes graduates who received BS degree in more than one field.

COMMENTS

The decline in the total number of graduates which started last year continued with a decrease of 7.5%. Most of this decrease resulted from a drop of 91, or 14%, in the number of BS graduates, whereas the number of MS graduates increased slightly and the number of PhD's remained the same. The number of Professional degrees declined from 9 to 4.

By programs, most of the decrease was accounted for in Aeronautical, Electrical, and Mechanical, but Instrumentation, Nuclear, and Science also showed significant decreases. Increases were shown by Industrial, Engineering Physics, Civil, and Materials with the largest being Industrial which increased by 48%. The increases in Civil and Materials contrast with decreases in both programs last year. Chemical continued to hold even for a second year after several years of decline.

The proportion of graduates in each class again showed no significant change, but the proportion of advanced degrees compared to BS graduates increased by 3%.

STUDENT AND ALUMNI ACTIVITY

NUMBER OF STUDENTS INTERVIEWING	BS	MS	PhD	Total
Citizens* for Regular Employment	320	165	64	549
Citizens for Summer Employment	314	57	49	418
Non-citizens	56	43	34	133
Totals	690	265	147	1102

NUMBER OF INTERVIEWS CONDUCTED

FOR REGULAR EMPLOYMENT	Fall	Spring	Total
By Engineers, Citizens	2057	2730	4805
By Engineers, Non-citizens	349	356	705
By Non-engineers	115	330	445
Totals for Regular Employment	2539	3416	5955
FOR SUMMER EMPLOYMENT	250	1125	1375
Totals for All Employment	2789	4541	7330

NUMBER OF INTERVIEWS, average per citizen accepting regular employment	BS	MS	PhD	Total
	9.7	9.8	9.4	9.7

NUMBER OF PLANT VISIT INVITATIONS, average per citizen accepting regular employment	BS	MS	PhD	Total
	3.7	5.7	10.0	4.9

NUMBER OF PLANT VISITS ACCEPTED, average per citizen accepting regular employment	BS	MS	PhD	Total
	2.3	4.2	7.2	3.3

INTERVIEWING BY PhD CANDIDATES

Number of Candidates Interviewing.....	130
Number of Interviews Taken.....	433
Average Interviews per Candidate.....	3.3

* "Citizen" and "Non-citizen" refers to U.S. citizenship. Many non-citizens are available for temporary "practical training" employment only, usually for eighteen months following graduation.

POSTGRADUATE PLANS

	BS		MS		PhD		Total	
	No.	%	No.	%	No.	%	No.	%
To Accept Reg. Emplm't	157	47	96	52	35	98	288	52
To Continue School	139	42	52	28	0	0	191	35
To Military Service	35	11	38	20	1	2	74	13
Other	1	0	0	0	0	0	1	0
Totals	332	100	186	100	36	100	554	100

NUMBER OF ALUMNI UTILIZING PLACEMENT SERVICE..... 159

COMMENTS

The total number of students interviewing increased by 3.5% in contrast to a decrease of 12% last year. Most of the decline last year, however, was in interviewing for summer rather than regular employment, whereas this year there was a substantial decline of 14% in the number interviewing for regular employment with the over-all increase being caused by an increase of 44% in the number interviewing for summer jobs. This trend was also evidenced in the number of interviews conducted.

The number of interviews per student remained substantially the same at all degree levels.

The number of plant visit invitations per student increased at all degree levels with the largest increase being for PhD's. The number of invitations accepted also increased, except for BS degrees which remained the same.

The number of PhD candidates interviewing increased by 33% although the average number of interviews per candidate declined somewhat.

The proportion of graduates accepting regular employment decreased substantially from 58% last year to 52%. Most of this decrease resulted from an increase in the proportion of BS graduates planning to continue in school, whereas the proportion of MS graduates planning to continue in school declined somewhat compared to last year.

The number of alumni served increased by 8%.

EMPLOYER ACTIVITY

NUMBER OF EMPLOYERS SCHEDULING INTERVIEW VISITS	Fall	Spring	Total
	319	403	483*

NUMBER OF INTERVIEW VISITS

BY INDUSTRIES	Visits Scheduled	Visits Cancelled	Visits Completed	
			No.	%
Aircraft and Missiles	90	9	81	13
Electrical Products	125	21	104	17
Chemical Products	214	36	178	29
Food	14	5	9	1
Automotive and Parts	12	2	10	2
Other Mechanical Products	105	32	73	12
Heavy Machinery & Equip.	24	6	18	3
Steel & Metallurgical	37	11	26	4
Construction, inc. Shipbldg.	12	2	10	2
Utilities, inc. Transportation	32	6	26	4
State & Local Gov't	15	3	12	2
Federal Gov't	56	9	47	7
Education and Research				
Related to Education	15	2	13	2
Consulting Engineering	21	6	15	2
Totals	772	150	622	100

BY SIZE OF EMPLOYER'S ORGANIZATION

	Visits Scheduled	
	No.	%
Large (Over 5000 employees)	486	63
Medium (Between 500 and 5000 employees)	236	31
Small (Less than 500 employees)	50	6
Totals	772	100

NUMBER OF OFFERS, average	BS	MS	PhD	Total
per citizen accepting regular employment	4.1	4.9	6.7	4.6

NUMBER OF EMPLOYERS REQUESTING APPLICANTS BY MAIL

Students for Regular Employment.....	247
Students for Summer and Part-time.....	38
Alumni with Experience.....	563

* This total is the number of separate employers who scheduled visits during the year. Since more than half of these scheduled more than one visit, this total is not equal to the sum of the numbers of employers for fall and spring.

EMPLOYER ACTIVITY

COMMENTS

The number of employers scheduling visits increased by 8.5% in contrast to a 6% decrease last year. The increase was substantially greater in the fall than in the spring, however.

Similarly, the number of scheduled visits increased by more than 10%, with three-quarters of the increase occurring in the fall semester. The number of cancellations, however, increased by 77% resulting in a net increase in completed visits of only 1.3% for the year.

Most of the increase in scheduled visits was made by large electrical, mechanical, and chemical companies, but the cancellations were such that the proportion of completed visits did not change significantly for any industry.

For a second year there was no significant change in the distribution of employers according to size.

The average number of offers per student increased somewhat for MS degrees, but remained the same at the BS level and was lower for PhD's.

The number of employers requesting student applicants for regular employment by mail decreased slightly compared to a large increase last year, but there was a small increase in the number of employers requesting alumni applicants.

STARTING SALARIES ACCEPTED

(By citizens for regular employment, teaching positions omitted)

Program	BS		MS		PhD	
	No.	Aver.	No.	Aver.	No.	Aver.
Aero. & Astro.	11	\$602	3	\$715		\$
Chemical	11	606	10	677	10	928
Civil	12	564	10	652	1	875
Electrical	33	599	14	696	3	1194
Engineering Mechanics	4	576	3	754		
Industrial	15	570	6	763	1	850
Instrumentation			8	785	2	1036
Materials	1	570				
Mathematics	4	600				
Mechanical	40	596	10	690	2	1012
Metallurgical	4	630	4	715	5	974
Naval Arch. & Marine	5	677				
Nuclear			3	797	2	1118
Physics	3	593				
Science	5	592				
Combined	9	621				
Total No.	157		71		26	
Average Salary		\$594		\$709		\$ 996

COMMENTS

Starting salaries reported increased 4.4% at the BS level and 8.3% for PhD's, but no change was indicated at the MS level. The apparent lack of increase for MS degrees is considered to be the result of an inadequate sample with the salaries reported last year running on the high side and the offers this year on the low. This is borne out in comparing with the national survey of the College Placement Council which reports the average for technical BS degrees at \$595, in close agreement with our experience, whereas their average for MS degrees was \$689 for Chemicals, \$751 for Electricals, and \$722 for Mechanicals - all substantially above the averages reported by our graduates.

The ranking by programs at the BS level remained substantially the same as last year except that Mechanicals moved closer to the top-ranking group of Aeros, Electricals, and Chemicals, and the Industrials dropped closer to the lower-ranking Civils.

Although the above data were not tabulated by industries, the College Placement Council survey indicates that highest starting salaries were offered by the aircraft industry, closely followed by electronics, electrical machinery, chemicals and drugs. Next came the automotive, mechanical equipment, metals, and petroleum industries. The most dramatic increase was made by public utilities which showed a hike of more than 7% over last year.

POSITIONS ACCEPTED

(By citizens for regular employment)

<u>BY LOCATION</u> (261 reported)		<u>BY TYPE OF WORK</u> (259 reported)	
	<u>%</u>		<u>%</u>
Michigan	27	Training Program	32
Other Midwest	18	Research & Development	39
East	26	Design or Systems Engrg.	19
West	26	Operations or Production	1
Other	<u>3</u>	Sales	8
	100	Teaching	<u>1</u>
			100

BY TYPE OF INDUSTRY (260 reported)

<u>Manufacturing</u>		<u>Services</u>	
	<u>%</u>		<u>%</u>
Aircraft & Missiles	26	Construction, inc. Shipbldg.	3
Electrical Products	17	Utilities, inc. Transportation	3
Chemical Products	12	Consulting Engineering	4
Automotive & Parts	13	State & Local Gov't	4
Other Mechanical Products	3	Federal Gov't	4
Heavy Machinery & Equip.	3	Education or Research	
Steel & Metallurgical	<u>3</u>	Related to Education	<u>5</u>
	77		23

BY SIZE OF EMPLOYER'S ORGANIZATION (260 reported)

	<u>%</u>
Large (More than 5000 employees)	60
Medium (Between 500 and 5000 employees)	31
Small (Less than 500 employees)	<u>9</u>
	100

COMMENTS

The proportion of graduates starting work in Michigan increased slightly at the expense of other midwest states, but the proportion leaving the Midwest remained almost the same as last year. There was a significant shift in favor of the East Coast over the West Coast, however, with the same number going to each compared to over 40% more going to the West Coast last year.



The proportion of graduates starting in the three major types of work did not change significantly compared to last year, but there was a significant shift to Sales at the expense of Operations and Production. The decline in the latter category continues the trend of last year even more strongly.

Although the proportion of graduates starting in manufacturing industries remained approximately the same, the Aircraft industry dropped substantially in favor of Automotive and Metals. In the Service group of industries, the Federal Government and Education dropped somewhat with corresponding increases in Utilities, Consulting, and State and Local Governments. The latter change reverses the experience of last year and probably does not reflect any definite trend.

Small employers made some recovery with respect to medium-sized employers, but the proportion still remains much smaller than in former years.