

THE UNIVERSITY OF MICHIGAN  
INDUSTRY PROGRAM OF THE COLLEGE OF ENGINEERING

ANNUAL REPORT OF ENGINEERING PLACEMENT

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IP-714



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## OBSERVATIONS

June 6, 1964 - June 5, 1965

The overall demand for our graduates was at least as strong or stronger than last year, as evidenced by both recruiting activity and volume of offers. Starting salaries also increased by about the same amount as last year according to the national College Placement Council Survey, although the overall increase reported by our own graduates was unexplainably somewhat less.

The chemical and drug industry was distinguished by offering the highest average salaries this year at the BS level, and Chemical Engineering BS graduates received the highest salaries of all the major programs. Aerospace and Electronics, however, continued to pay the highest premium for MS degrees although their demand volume continued to decline except for a very few employers.

The trend for a larger proportion of our graduates to start in the East rather than the West continued this year and was accompanied by a substantial increase in the proportion staying in Michigan and the Midwest.

Student activity in interviewing and plant visits also increased this year in spite of the advent of the tri-term calendar. A decline in the proportion going to military service resulted in a somewhat larger number of graduates being available for employment.

A strong market for next year is indicated by an increase of almost 10% in advanced bookings for interview visits compared to a 10% decrease at this time last year.

NUMBER OF DEGREES GRANTED

PROGRAM	B. S.			M. S.			Professional			Ph. D.		TOTAL IN EACH CLASS			TOTAL IN EACH PROG.	% IN EACH PROG.
	Aug	Dec	May	Aug	Dec	May	Aug	Dec	May	Dec	May	Aug	Dec	May		
	'64	'64	'65	'64	'64	'65	'64	'64	'65	'64	'65	'64	'64	'65		
Aero. & Astro.	5	31	33	4	13	10				1		9	45	43	97	10
Chemical	5	18	29	6	10	8				5	6	11	33	43	87	9
Civil	2	13	21	6	8	19				6		8	27	40	75	8
Electrical	11	52	73	17	22	26				10	4	28	84	103	215	21
Engrg. Math	8	14	23									8	14	23	45	5
Engrg. Mech.	1	2	6	1	4	14				4	3	2	10	23	35	4
Engrg. Physics	1	10	12									1	10	12	23	2
Industrial	5	19	24	1	11	13				4	2	6	34	39	79	8
Instrumentation				5	5	16		2		1	2	5	8	18	31	3
Materials	1	1	2	1								2	1	2	5	0
Mechanical	16	39	39	14	20	27				1	1	30	60	67	157	16
Metallurgical		5	9		3	1				1	2		9	12	21	2
Meteorology				3						2	2	3	2	2	7	1
Nav. Arch. & Mar.	5	16	15	1	2	7				1		6	19	22	47	5
Nuclear Science				4	3					5	4	4	8	4	16	2
Communication Sci	1	13	21							2	2	1	13	21	35	4
													2	2	4	0
TOTALS IN EACH CLASS	61	233	307	63	101	141		2		43	28	124	379	476	979	100%
% IN EACH CLASS	10	39	51	21	33	46		0	100	0	61	39	13	39	48	
TOTALS AT EACH DEGREE LEVEL	601*			305*				2		71		979				
% AT EACH DEGREE LEVEL	62%			31%				0%		7%		100%				

\*Fifty persons received two B.S. degrees and four persons received two M.S. degrees during the year; therefore, the number of persons receiving B.S. degrees was 551 and receiving M.S. degrees was 301.

COMMENTS

There were no significant changes in the total number of degrees granted at each level or in the graduating classes, except for a 6% increase in the proportion graduating in December at the expense of both the August and May classes.

The only significant changes in the number of degrees in each program were a decline of 21% for Civil and an increase of 85% in Science (An error in last year's report should be noted in connection with the latter: The number of degrees in Science should have been shown as 19 with 30 in Nuclear rather than 5 and 44, respectively).

STUDENT AND ALUMNI ACTIVITY

NUMBER OF STUDENTS INTERVIEWING	BS	MS	PhD	Total
Citizens* for Regular Employment	360	169	59	588
Citizens for Summer Employment	234	49	19	302
Non-citizens	49	45	24	118
Non-engineers	22	31	1	54
Totals	665	294	103	1062

NUMBER OF INTERVIEWS CONDUCTED

<u>For Regular Employment:</u>	Fall	Spring	Total
By Engineers, Citizens	3010	3661	6671
By Engineers, Non-citizens	359	427	786
By Non-engineers	14	87	101
Totals for Regular Employment	3383	4175	7558
For Summer Employment:	187	495	682
Total for All Employment	3570	4670	8240

NUMBER OF INTERVIEWS, average	BS	MS	PhD	Total
per citizen accepting regular employment	13.6	10.0	5.4	12.1

NUMBER OF PLANT VISIT INVITATIONS, average	BS	MS	PhD	Total
per citizen accepting regular employment	4.9	6.3	6.5	5.4

NUMBER OF PLANT VISITS ACCEPTED, average	BS	MS	PhD	Total
per citizen accepting regular employment	3.1	2.5	5.5	3.5

INTERVIEWING BY PhD CANDIDATES

	<u>Degree Expected</u>		Total
	Before Sept. '65	After Sept. '65	
Number of Candidates Interviewing	89	30	119
Number of Interviews Taken	383	58	441
Average Interviews per Candidate	4.3	1.9	3.7

\* "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.	%
Cit. Accept. Reg. Emplm't	156	52	66	47	21	88	243	52
Cit. Continuing in School	116	38	37	26	0	0	153	33
To Military Service	23	7	26	18	0	0	49	10
To Return to Prev. Emplm't	2	1	10	7	3	12	15	3
Non-Cit. Ret'ng. to Home Country	5	2	3	2	0	0	8	2
Totals	302	100	142	100	24	100	468	100

NUMBER OF ALUMNI UTILIZING PLACEMENT SERVICE . . . . . 153

COMMENTS

Although the volume of interviewing for regular employment continued to increase substantially, there was a continued decrease in the volume of interviewing for summer employment. This is believed to be the result of more pre-selection and fewer group meetings by summer employers rather than a decrease in student interest or the number of openings.

The number of interviews per student also increased significantly, in spite of the compressed calendar, and there was no decline in the number of plant visits accepted.

There was a notable increase in the volume of interviewing by PhD candidates, but a slight decrease in the average number of interviews per candidate.

Last year's increase in the proportion of graduates going to military service was reversed with a drop from 17% to 10%. There was a corresponding gain in the proportion accepting regular employment, with the proportion continuing in school remaining practically the same.

EMPLOYER ACTIVITY

NUMBER OF EMPLOYERS SCHEDULING INTERVIEWS VISITS	Fall	Spring	Total
	313	376	445*

NUMBER OF INTERVIEW VISITS

<u>By Industries:</u>	Visits Scheduled	Visits Canceled	Visits Completed	
			No.	%
Aircraft, Space Veh., & Components	67	7	60	9
Automotive & Mechanical Equipment	107	14	93	15
Chemical, Drugs, & Allied Products	142	14	128	20
Constr. & Bldg. Mat'ls. Mfgrs.	13	2	11	2
Elect. Machinery & Equipment	62	11	51	8
Electronics & Instruments	47	7	40	6
Food & Beverage Processing	14	3	11	2
Glass, Paper, Pkg., & Allied Products	31	1	30	5
Metal & Metal Products	66	13	53	8
Petro. & Allied Prod. (inc. Nat. Gas)	23	1	22	3
Res. &/or Consulting Organizations	27	3	24	4
Tire & Rubber	14	3	11	2
Utilities-Public (inc. Trans.)	37	6	31	5
State & Local Government	14	3	11	2
Federal Government	47	5	42	7
Educ. or Res. Related to Education	14	2	12	2
<b>Totals</b>	<b>725</b>	<b>95</b>	<b>630</b>	<b>100</b>

By Size of Employer's Organization:

	Visits Scheduled	
	No.	%
Large (Over 5000 employees)	467	65
Medium (Between 500 and 5000 employees)	211	29
Small (Less than 500 employees)	47	6
<b>Totals</b>	<b>725</b>	<b>100</b>

NUMBER OF OFFERS, average	BS	MS	PhD	Total
per citizen accepting regular employment	4.1	4.4	4.7	4.2

NUMBER OF EMPLOYERS REQUESTING APPLICANTS BY MAIL

Students for Regular Employment . . . . .	269
Students for Summer and Part-time . . . . .	104
Alumni with Experience . . . . .	587

\* 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.



COMMENTS

Although there was a continued decrease of almost 6% in the number of employers, the number of visits scheduled was the same as last year and with a decrease in the number of cancellations there was a net increase in completed visits of 3½%. It is believed that this reflects increasing consolidation of representation by the multi-division employers and increasing intensity of recruiting effort.

The proportion of visits from the Aerospace industry continued its decline by 2%. Petroleum and State & Local Government also made fewer visits, with corresponding increases in Automotive and Utilities.

The proportion of large employers lost 2% of the 4% increase reported last year, so evidently no trend has been established.

The average number of offers reported by students accepting regular employment declined somewhat, mostly at the MS level. There is no evident explanation for this since the volume of offers reported by employers more than doubled.

The number of requests by mail increased substantially for all types of employment, the increased interest in experienced alumni being the most significant change.

STARTING SALARIES ACCEPTED\*

(By citizens for regular employment, teaching positions omitted)

BY PROGRAMS	BS		MS		PhD	
	No.	Aver.	No.	Aver.	No.	Aver.
Aero. & Astro.	20	\$638	3	\$789		
Chemical	20	650	9	753	5	\$1072
Civil	14	624	5	698	1	930
Communication Science					2	1150
Electrical	31	637	21	827	5	1046
Engineering Mechanics	4	610	3	767	2	1041
Industrial	9	624	5	768	2	1250
Instrumentation			4	798		
Materials	1	647	1	750		
Mathematics						
Mechanical	25	643	9	800		
Metallurgical	1	610			1	1067
Meteorology & Oceanography					1	1100
Naval Arch. & Marine	12	639	2	775		
Nuclear			3	775	2	1118
Physics	4	640				
Science	5	602				
Combined	10	666	1	800		
Total No.	156		66		21	
Average Salary		\$638		\$773		\$1086

  

BY INDUSTRIES	BS		MS		PhD	
	No.	Aver.	No.	Aver.	No.	Aver.
Aircraft, Space Vehicles, & Components	33	\$642	12	\$808	2	\$1162
Automotive & Mech. Equip.	32	638	12	780		
Chem., Drugs, & Allied Prod.	21	648	7	746	2	1263
Constr. & Bldg. Mat'ls Mfrs.	11	631	4	705		
Elect. Machinery & Equip.	11	628	3	775		
Electronics & Instruments	11	648	13	798	4	1175
Food & Beverage Processing	1	657				
Glass, Paper, Pkg. & Allied Products	5	653	3	767		
Metal & Metal Products	8	646	3	717	1	1067
Petro. & Allied Prod. (inc. Nat. Gas)	7	636	2	768	2	1073
Res. &/or Consulting Organ's.	6	626	5	759	3	1036
Tire & Rubber	2	643				
Utilities-Public (inc. Trans.)	6	625	2	683		
State & Local Government	2	638				
Educ. or Res. Related to Educ.					7	991
Total No.	156		66		21	
Average Salary		\$638		\$773		\$1086

\*No salaries reported by Professional degree graduates.

COMMENTS

The increase in starting salaries this year was substantially less than last year at all degree levels: 2.6% for BS, 2.1% for MS, 3.4% for PhD's. The nation-wide College Placement Council Survey reported a somewhat larger increase, however, which resulted in our averages at all degree levels being almost identical with the national average. This survey also indicated that the increase was higher for non-technical than for technical graduates, resuming a trend noted in the early '60s and interrupted only last year.

At the BS level, Chemical engineers reported the highest average, leading Aero and Electrical for the first time. This resulted from a 4.9% increase in the average for Chemicals compared to zero increase for Aero and only 1.4% for Electrical. At the MS level, however, Electricals were still substantially in the lead with Chemicals ranking fourth among the major programs. This leads to the observation that the average differential for the MS degree in Chemical was only \$103 compared to \$190 for Electricals and \$151 for Aero. Civil, however, continued to show the lowest average differential at \$74, and it is known that some employers of Civils offered no difference at all for the MS degree.

Similarly, the Chemical industry was tied with Electronics for the highest BS average, ahead of both Aerospace and Automotive at 4.4%. At the MS level, the Chemical industry ranked only fifth, with Aerospace and Electronics substantially ahead of all others, again indicating the higher premium for the MS degree in these fields.



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POSITIONS ACCEPTED

(By citizens for regular employment)

<u>BY LOCATION</u> (253 reported)		<u>BY TYPE OF WORK</u> (253 reported)	
	<u>%</u>		<u>%</u>
Michigan	31	Training Program	35
Other Midwest	24	Research & Development	30
East	23	Design or Systems Engrg.	20
West	16	Operations or Production	10
Other	6	Sales	3
	<u>100</u>	Teaching	<u>2</u>
			100
<u>BY TYPE OF INDUSTRY</u> (253 reported)			
	<u>%</u>		<u>%</u>
Aircraft, Space Vehicles, & Components	18	Metal & Metal Products	5
Automotive & Mech. Equip.	19	Petro. & Allied Prod. (inc. Nat. Gas)	4
Chem., Drugs, & Allied Prod.	11	Res. &/or Consulting Organ's.	5
Constr. & Bldg. Mat'ls. Mfrs.	6	Tire & Rubber	2
Elect. Machinery & Equip.	6	Utilities-Public (inc. Trans.)	3
Electronics & Instruments	10	State & Local Government	1
Food & Beverage Processing	0	Federal Government	3
Glass, Paper, Pkg., & Allied Prod.	4	Educ. or Res. Related to Educ.	<u>3</u>
			100
<u>BY SIZE OF EMPLOYER'S ORGANIZATION</u> (253 reported)			
		<u>%</u>	
Large (More than 5000 employees)		<u>63</u>	
Medium (Between 500 and 5000 employees)		27	
Small (Less than 500 employees)		<u>10</u>	
		100	

COMMENTS

The proportion of graduates starting in Michigan increased by 4% this year and Other Midwest increased 3% with proportionate reductions in the proportions to the East and West.

Last year's decrease in the proportion starting in Training Programs was reversed with an even larger increase at the expense of Research & Development, Design or Systems, and Teaching.

There was a substantial drop of 9% in the proportion starting in Aerospace, accompanied by substantial gains of 7% and 5% in Automotive and Chemical respectively. Electronics, State & Local Government, and Education also lost ground compared to last year, but Glass, etc. increased its proportion from 1% to 4%.

The proportion starting in medium-sized organizations dropped 4% with corresponding increases of 2% each to large and small organizations.