

III Career Ed - Iowa

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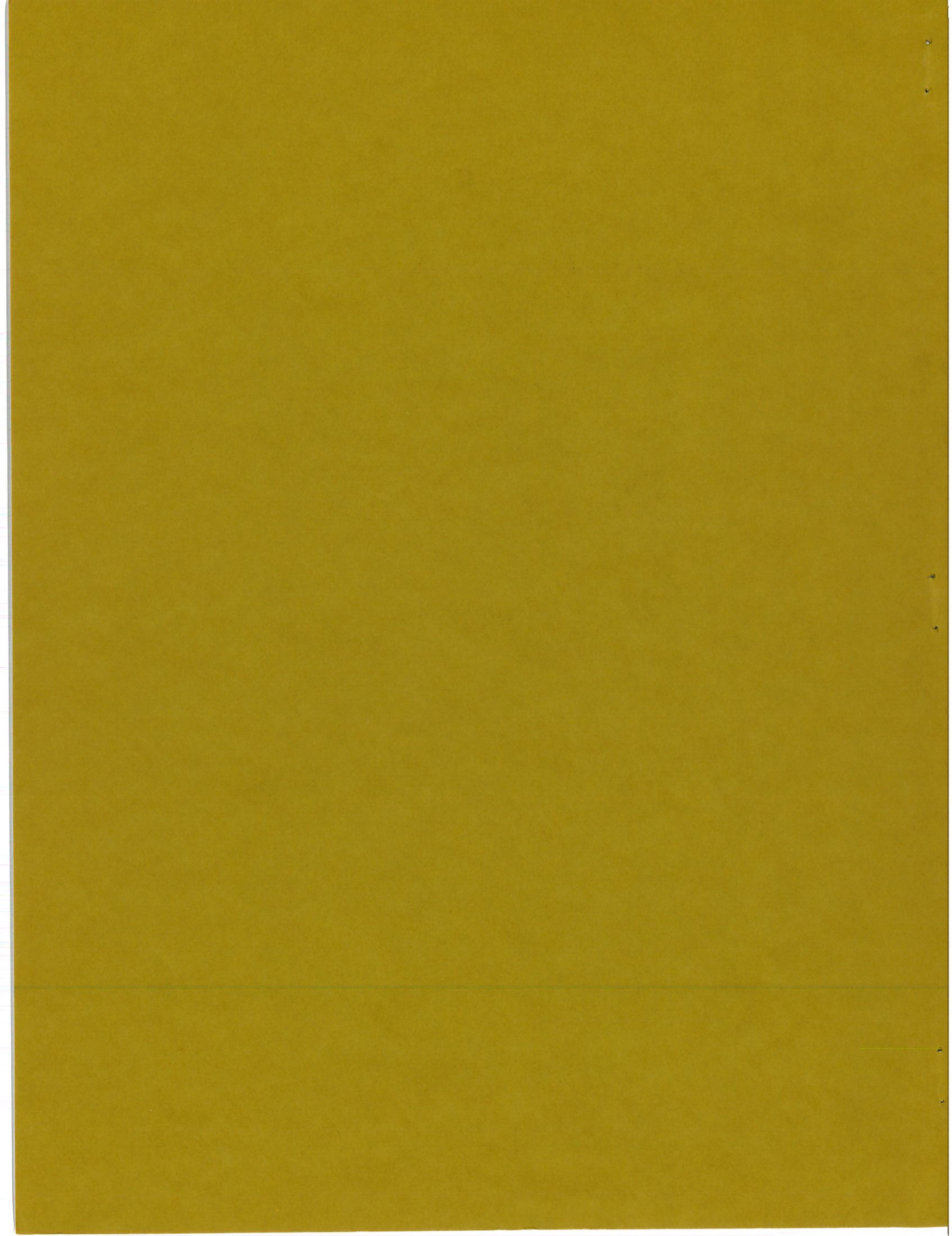
Career Education Needs Information System

AREA XI AND
STATEWIDE REPORT

JUNE, 1978

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STATE OF IOWA
DEPARTMENT OF PUBLIC INSTRUCTION

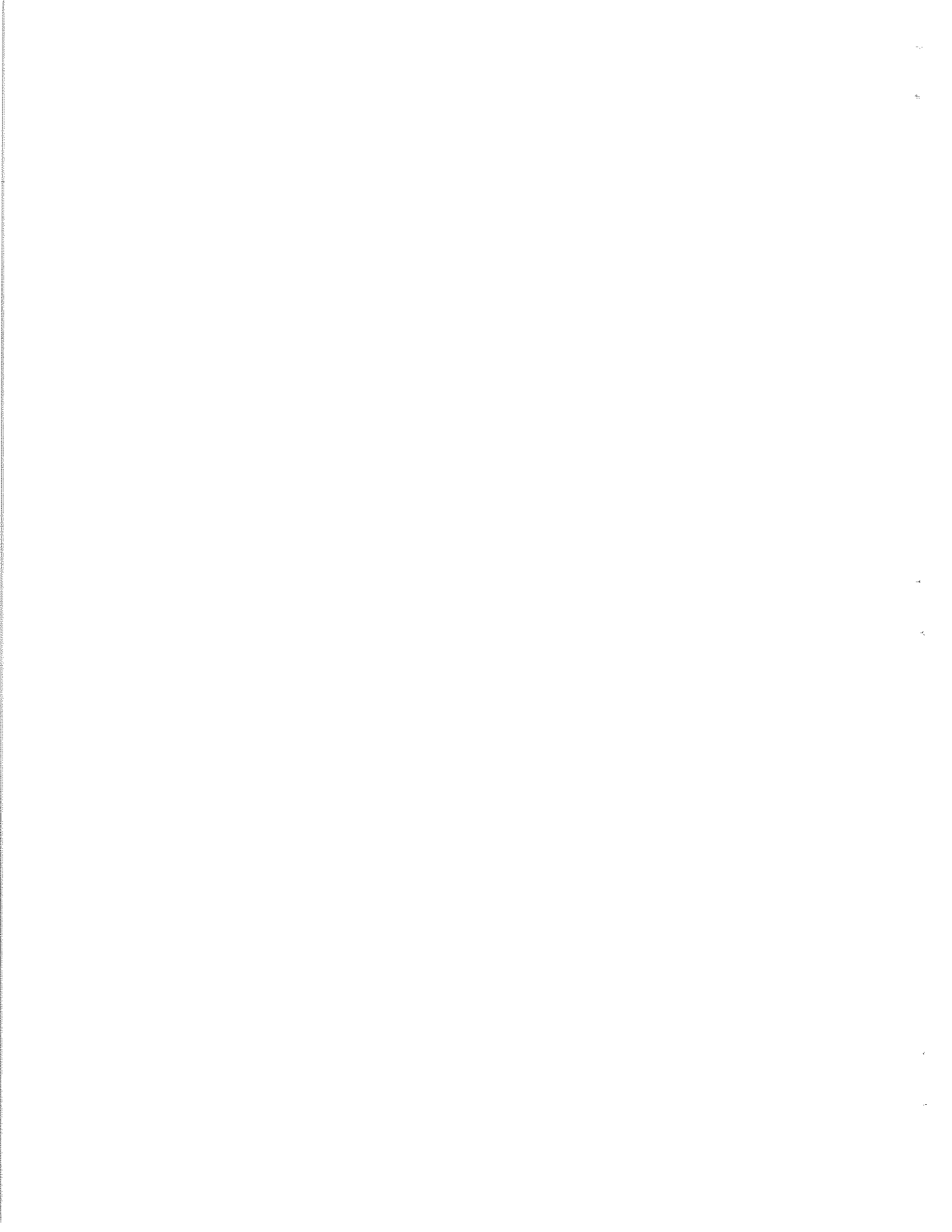


CAREER EDUCATION NEEDS INFORMATION SYSTEM (CENIS)

AREA XI AND STATEWIDE REPORT

June, 1978

State of Iowa
DEPARTMENT OF PUBLIC INSTRUCTION
Career Education Division
Grimes State Office Building
Des Moines, Iowa 50319



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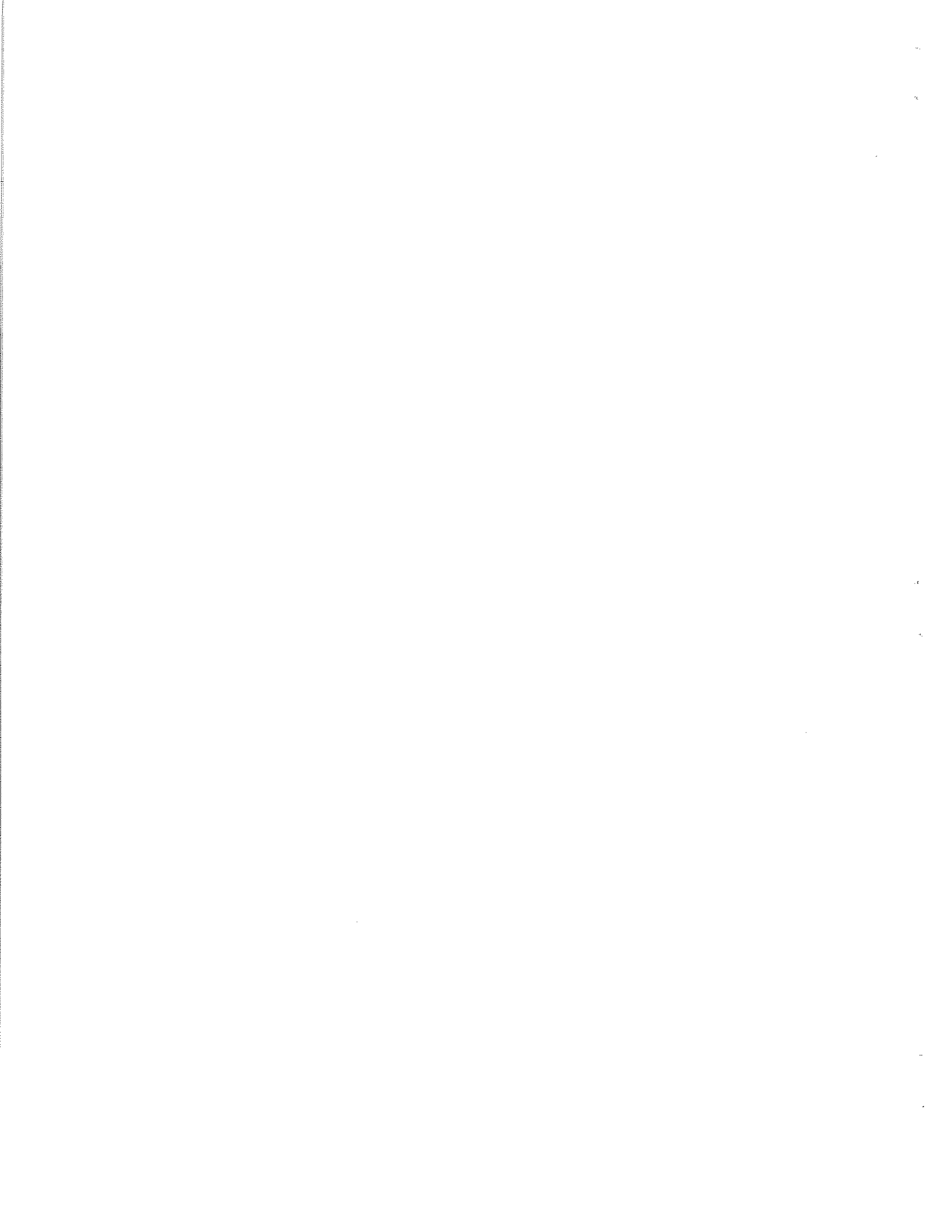
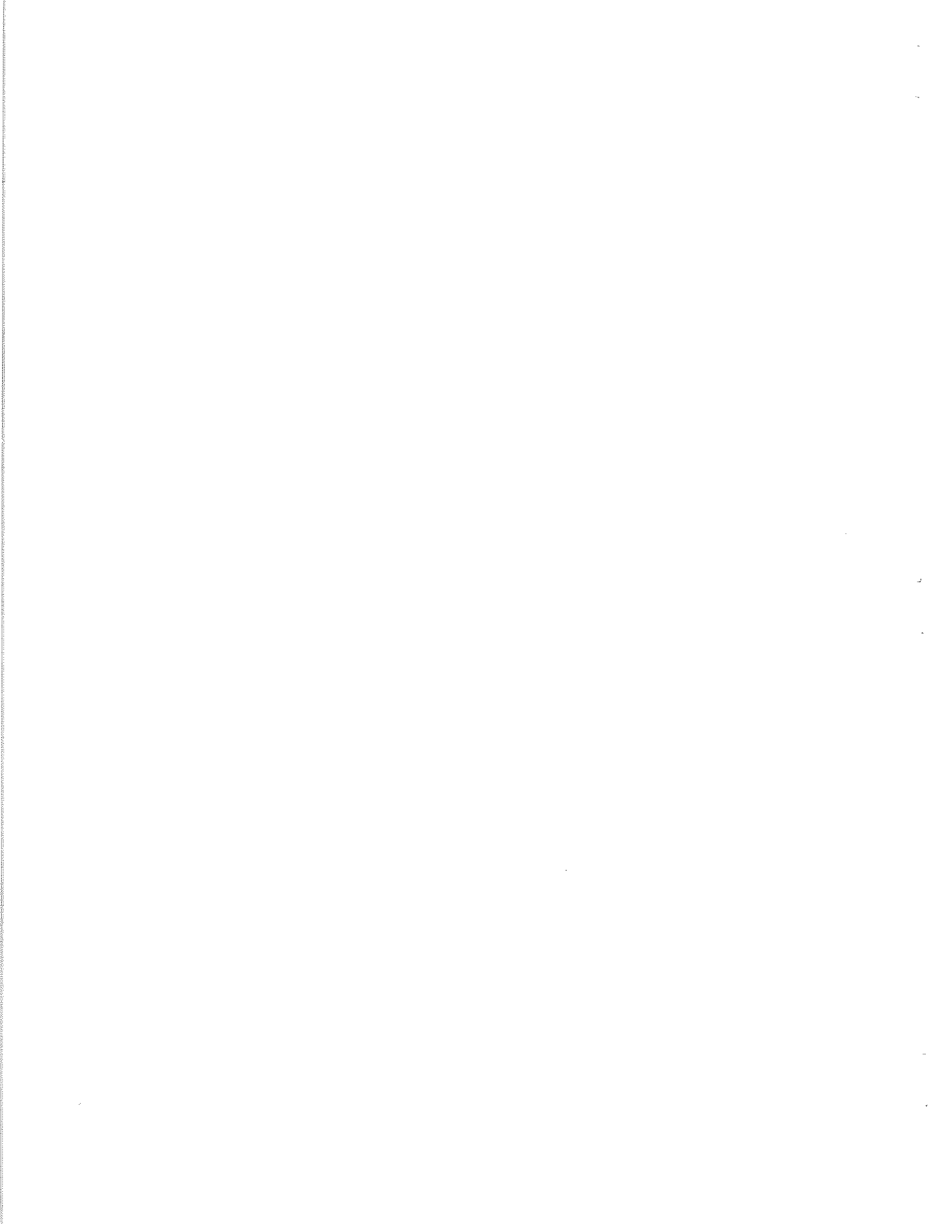


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CAREER EDUCATION NEEDS INFORMATION SYSTEM
(CENIS) Cycle III

AREA INTERFACE REPORT

MERGED AREA XI

I. Introduction

This report complements the statewide CENIS III report which is included in this report. The same four components of CENIS are presented as in the statewide report (labor demand, labor supply, student interest and student outcomes), but all data refer directly to the merged area.

II. CENIS Cycle III - Area XI

CENIS Cycle III operated during Fiscal Year 1978, using basically the same methodology as that employed in CENIS II.

The following component descriptions and explanatory comments may be helpful in interpreting the data.

A. Labor Demand Survey

1. Employer Sample

A representative sample of 710 employers was selected for Area XI (by the Iowa State Statistical Laboratory) representing all employers of 75 or more (with workers in one or more of the 300 occupations encompassed in CENIS); with a further stratification forcing in those employers representing occupations critical to the survey who might have been missed in a random sample, and the remainder of the sample selected randomly. From the sample of 710, a total of 590 usable responses was received, representing a response rate for Area XI of 83%. Non-responses were distributed as follows: Duplicates - 8; No Applicable Occupations - 12; No Full-Time Employees - 55; Out-of-Business - 31; and Refusals - 14 (2% of the total sample).

2. Labor Demand Projection Period for CENIS III

Employers were asked to project their demand for workers for one (1978), three (1980), and five (1982) years.

3. Other Labor Demand Reports

In addition to the labor demand data arranged by taxonomy which are presented on the CENIS Interface report, other area arrangements are available in printout form which

display labor demand projections for each specific occupation included in the CENIS survey. These data also identify replacement and expansion needs for each projection period. As an example, the detailed report for 17.2306 Welding and Cutting, Area XI, appears as follows:

Occupation	Full-Time Employment	1978			1980			1982		
		Expn.	Repl.	Total	Expn.	Repl.	Total	Expn.	Repl.	Total
Welder, Arc	410	3	38	41	16	44	60	26	46	72
Welder, Inert Gas Shielded Arc	170	66	3	69	142	6	148	142	6	148
Welder, Combination Repair Welder	289	16	30	46	72	60	132	120	63	183
Welder, Resistance Machine	23	24	0	24	48	0	48	48	0	48
Flame Cutting Machine Operator	67	3	4	7	5	5	10	5	5	10
	43	1	2	3	8	6	14	15	4	20
TOTALS	1002	113	77	190	291	121	412	356	125	481

An inspection of the above table reveals that individual occupations may have a far different growth rate from the taxonomy as a whole.

Information similar to that shown above may be requested for individual programs, if needed.

III. CENIS Cycle III Interface - Area XI

Interpretation of the various Interface columns may be facilitated by the following comments:

1. "Current Employment" refers to the projected employment figure based on information provided by the sample forms during the labor demand survey (Spring 1977).
2. "Labor Demand" refers to the projection for 1980.
3. "Vocational Education" refers to the projected supply of students available for work in the various occupational areas, and was derived by applying the placement rate (percent available for work) against the enrollment figures in the FY 1977 CE-4 Reimbursement report. Data are available only for the vocational education programs for which a specific taxonomy is available, e.g., no information was provided for secondary cooperative programs such as 04, 14, 17, and multi-occupations grouping.

4. "Private Business and Industry Training" refers to the number of workers (identified by employers on the labor demand survey) being prepared through formal (80 hours or more) in-plant training who would be completing training by June, 1978.
5. "CETA" refers to enrollment in Comprehensive Employment and Training Act class-size projects.
6. "Private Schools" refers to anticipated completions reported by private proprietary schools offering training in the occupations surveyed by CENIS.
7. "Total Supply" refers to the sum of the four labor supply components.
8. "Net Demand" refers to the difference (positive and negative) between the projected labor demand and the total supply. This column represents the most important entry on this report since it identifies the true training need for each occupational area.
9. "Primary Interest" refers to the occupational choices indicated by 11th and 12th graders (public and private high schools) during FY 1977 Student Interest Surveys.
10. The remainder of the entries refer to Student Outcomes as reflected in the 1975-76 Vocational Student Follow-Up.
 - a. "Available for Work" excludes those program leavers who were continuing their education, had withdrawn from the labor market, or were not available for work for other reasons (marriages, illness, etc.).
 - b. "Completing - Number/Percent" refers to the number of students who successfully completed the vocational education program and the percentage of completers to total program leavers.
 - c. "Completers Employed in Occupation Trained or Related Area" refers to former completers now employed in the occupation trained or related - the actual number employed and the percentage of all completers.
 - d. "Available for Work, Employed in Occupation Trained or Related Area" refers to both completers and to those program leavers who did not complete the program, but who had obtained employment in the occupation for which they were trained or in a closely related area. The percentage figure appearing here is recognized as the placement rate for that occupation, and is the factor used to compute the projected supply of vocational education students.

IV. Uses of CENIS III Interface Data

This data arrangement should be of value to vocational education program planners in reviewing existing programs or in planning possible new offerings, since it provides a profile of data indicators which should assist in decision making.

Interface data should also be of value in providing occupational information for guidance and counseling activities.

NOTE: Since no data on farmers or farm workers are collected in the CENIS labor demand surveys, agriculture production programs are not included in the area interface reports. Statewide farmer/farm worker data were extracted from Job Service of Iowa occupational projections reports.

CAREER EDUCATION NEEDS INFORMATION SYSTEM

INTERFACE SUMMARIES - AREA XI

Taxonomy Number	Taxonomy Title	Current Employ.	Labor Demand	Labor Supply				Net Demand	Student Interest	No. Avail. For Work	Completing		Student Outcomes	
				Vocational Education	Private Bus. & Indus. Trng	CETA	Private Schools				Total Supply	Number	Percent	Com-pleters
01.0101	Animal Science	0	0	0	0	0	0	0	0	0	0	0	0	0
01.0200	Agri. Supplies/Services	373	43	144	0	0	0	-101	174	23	17	65	14	14
01.0301	Agri. Power & Machinery	323	5	0	0	0	0	5	38	0	0	0	0	0
01.0401	Food Products	154	31	0	0	0	0	31	0	0	0	0	0	0
01.0502	Floriculture	253	5	0	0	0	0	5	69	0	0	0	0	0
01.0506	Turf Management	104	15	0	0	0	0	15	75	0	0	0	0	0
01.0511	Landscape Nur. & Gdn. Ctr.	29	23	17	0	0	0	6	106	27	11	41	11	11
01.0600	Agri. Resources	44	4	0	0	0	0	4	690	0	0	0	0	0
	TOTAL AGRICULTURE	1280	126	161	0	0	0	-35	1152	50	28	53	25	25
04.0100	Advertising Services	53	13	0	0	0	0	13	179	0	0	0	0	0
04.0200	Apparel & Accessories	832	292	9	0	0	0	283	156	23	11	39	6	6
04.0300	Automotive	1008	265	7	19	0	0	239	53	17	7	41	7	100
04.0400	Finance & Credit-Banking	984	132	4	8	0	0	120	100	0	0	0	0	0
04.0401	Finance & Cr.-Consumer Cr.	39	3	0	2	0	0	1	0	0	0	0	0	0
04.0402	Finance & Credit-Securities	163	147	0	0	0	0	0	0	0	0	0	0	0
04.0403	Finance & Credit-Agri. Bank.	6	1	0	0	0	0	147	0	0	0	0	0	0
04.0600	Food Distribution	578	238	0	0	0	0	238	123	0	0	0	0	0
04.0800	General Merchandise	1666	493	5	1	0	0	487	205	4	2	50	2	100
04.0801	Gen. Merchandise Specialist	758	189	5	64	0	0	120	80	21	7	30	4	57
04.0900	Hdwe. Bldg. Mtl's, Farm, Gdn.	571	73	6	0	0	0	67	8	0	0	0	0	0
04.1000	Home Furnishings	0	0	0	0	0	0	0	205	0	0	0	0	0

Taxonomy Number	Taxonomy Title	Current Employ.	Labor Demand	Student Interest						Student Outcomes							
				Vocational Education	Private Bus. & Indus. Trng.	CETA	Private Schools	Total Supply	Net Demand	Primary Interest	No. Avail. for Work	Completing	Employed in Occup. Trnd. or Rel. Area	Com-pleters for Work	Avail-able for Work		
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
04.1100	Hotel & Lodging	81	3	0	0	0	0	0	0	3	30	0	0	0	0	0	0
04.1200	Industrial Marketing	1980	353	5	52	0	57	296	23	296	23	28	6	60	6	21	0
04.1300	Insurance	353	54	8	46	0	54	0	20	0	20	0	0	0	0	0	0
04.1600	Petroleum	841	333	0	0	0	0	333	26	333	26	0	0	0	0	0	0
04.1700	Real Estate	1048	287	0	47	0	47	240	62	240	62	0	0	0	0	0	0
04.1800	Recreation & Tourism	20	11	0	0	0	0	11	79	11	79	0	0	0	0	0	0
04.1900	Transportation	237	52	0	0	0	0	52	470	52	470	0	0	0	0	0	0
04.2100	Tool & Equipment Rental	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL DISTRIBUTIVE	11218	2939	49	239	0	288	2651	1819	2651	1819	93	37	39	25	68	27
	EDUCATION																
07.0101	Dental Assisting	323	49	31	0	0	0	18	128	31	128	34	34	87	29	85	85
07.0102	Dental Hygiene	96	26	9	0	0	0	17	89	0	89	9	12	100	9	75	100
07.0103	Dental Lab Technicians	165	17	0	0	0	0	17	4	0	4	0	0	0	0	0	0
07.0200	Medical Lab Technicians	225	103	11	0	0	11	92	128	11	128	18	15	71	12	80	67
07.0203	Medical Lab Assistants	87	15	11	0	0	11	4	0	4	0	27	31	70	12	39	44
07.0301	Nursing (Assoc. Degree)	2520	495	36	152	0	247	248	506	248	506	49	33	79	34	64	69
07.0302	Practical Nurse	745	270	119	4	0	123	147	144	147	144	155	107	65	96	90	62
07.0303	Nursing Assistance	2362	1309	91	320	0	411	898	100	898	100	16	36	100	10	28	63
07.0305	Surgical Technicians	56	37	16	2	0	18	19	45	19	45	24	13	54	13	100	54
07.0307	Home Health Aide	19	28	0	0	0	0	28	0	28	0	0	0	0	0	0	0
07.0401	Occupational Therapy	15	2	0	0	0	0	2	47	2	47	0	0	0	0	0	0
07.0402	Physical Therapy	64	15	0	0	0	0	15	151	15	151	0	0	0	0	0	0
07.0410	Recreational Therapy	167	144	0	0	0	0	144	8	144	8	0	0	0	0	0	0
07.0501	Radiologic Technology	91	28	0	18	0	33	-5	51	-5	51	0	0	0	0	0	0
07.0502	Radiation Therapy	4	2	0	0	0	0	2	0	2	0	0	0	0	0	0	0
07.0503	Nuclear Medical Technicians	11	3	0	0	0	0	3	7	3	7	0	0	0	0	0	0
07.0603	Optometrist Assistants	47	24	0	0	0	0	24	55	24	55	0	0	0	0	0	0

Taxonomy Number	Taxonomy Title	Current Employ.	Labor Demand	Labor Supply						Student Interest	No. Avail. for Work	Completing		Student Outcomes			
				Vocational Education	Private Bus. & Indus. Trng.	GETA	Private Schools	Total Supply	Net Demand			Primary Interest	No. Avail. for Work	Number	Percent	Employed in Occup. Trnd. or Rel. Area	
																No.	%
07.0701	Environmental Hlth. Tech.	7	0	0	0	0	0	0	9	0	0	0	0	0	0		
07.0801	Mental Health Technicians	475	18	2	0	0	0	0	13	0	0	0	0	0	0		
07.0810	Alcoholism Counselors	4	3	0	0	0	0	0	8	0	0	0	0	0	0		
07.0900	Hlth. Care Facility Admin.	168	29	1	0	0	4	25	8	128	4	67	4	3	3		
07.0903	Respiratory Therapy	54	21	3	0	0	10	11	4	11	4	100	4	36	36		
07.0904	Medical Assistants	147	25	0	0	0	23	2	0	27	21	95	21	78	78		
07.0907	Medical Emergency Tech.	1	2	0	0	0	0	2	0	0	0	0	0	0	0		
07.0908	Food Service Supervisors	13	5	0	0	0	3	2	40	9	2	67	2	22	22		
07.0910	Orthopaedic Assistants	6	0	0	0	0	0	0	69	0	0	0	0	0	0		
07.0914	E.E.G./E.K.G. Technicians	41	13	2	0	0	2	11	12	0	0	0	0	0	0		
	TOTAL HEALTH OCCUPATIONS	7913	2683	504	0	74	938	1745	1626	507	316	65	246	78	246	49	
09.0201	Care & Guid. of Children	1279	130	0	0	0	51	79	217	26	14	50	10	71	10	38	
09.0202	Clothing Mgmt. & Prod & Svcs.	308	143	0	0	0	17	126	22	0	0	0	0	0	0	0	
09.0203	Food Mgmt. Prod. & Svcs.	3354	1440	5	0	0	20	1420	13	0	0	0	0	0	0	0	
09.0204	Home Furnish. & Equip Svcs.	65	19	3	0	0	3	16	36	0	0	0	0	0	0	0	
09.0205	Instit/Home Mgmt. & Supp Svcs	954	402	2	0	0	2	400	31	0	0	0	0	0	0	0	
	TOTAL HOME EC. REL. OCCUP.	5960	2134	10	0	0	93	2041	319	26	14	50	10	71	10	38	
14.0101	Accountants	567	117	25	0	51	84	33	138	53	28	44	14	50	14	26	
14.0102	Bookkeepers	3288	451	2	0	23	65	386	162	41	22	52	21	95	21	51	
14.0201	Computer/Console Operators	708	154	75	0	18	105	49	0	30	14	44	11	79	11	37	
14.0202	Keypunch Operators	511	104	0	0	0	74	30	58	0	0	0	0	0	0	0	
14.0203	Programmers	374	148	3	0	14	29	119	228	64	22	32	17	77	17	25	
14.0204	Systems Analysts	143	43	0	0	0	0	43	66	0	0	0	0	0	0	0	

Taxonomy Number	Taxonomy Title	Current Employ.	Labor Demand	Labor Supply						Student Interest	No. Avail. for Work	Completing		Student Outcomes	
				Vocational Education	Private Bus. & Indus. Trng.	CETA	Private Schools	Total Supply	Net Demand			Primary Interest	Number	Percent	Com-pleters
											No.	%	No.	%	
14.0303	General Office Clerks	0	2343	19	4	63	0	86	2257	334	51	35	56	19	37
14.0400	Information Communication	157	60	0	0	0	33	33	27	0	0	0	0	0	0
14.0410	Medical Records Clerks	95	18	0	0	0	0	0	18	0	0	0	0	0	0
14.0503	Shipping/Receiving Clerks	1177	269	0	24	0	0	24	245	11	0	0	0	0	0
14.0601	Education Assistants	6673	62	0	0	0	0	0	62	12	0	0	0	0	0
14.0701	Executive Secretaries	1404	110	10	0	0	0	10	100	0	32	7	18	6	19
14.0702	Secretaries	10158	696	64	4	0	111	179	517	734	143	87	53	64	45
14.0703	Stenographers	721	105	0	0	0	0	0	105	45	0	0	0	0	0
14.0805	Office Managers	856	64	0	2	0	0	2	62	9	0	0	0	0	0
14.0901	Clerk Typists	2063	543	2	0	0	0	2	541	112	5	16	89	2	40
	TOTAL OFFICE OCCUPATIONS	28900	5287	241	139	63	250	693	4594	1909	419	231	49	154	37
16.0105	Chemical Technicians	54	15	0	0	0	0	0	15	0	0	0	0	0	0
16.0106	Civil Technology	74	3	0	0	0	0	0	3	4	0	0	0	0	0
16.0107	Electrical Technology	48	5	0	5	0	0	5	0	0	0	0	0	0	0
16.0108	Electronic Technology	116	20	10	0	0	0	10	10	211	38	19	44	13	34
16.0109	Electromechanical Technology	0	0	0	0	0	0	0	0	12	0	0	0	0	0
16.0110	Environ. Control Technology	23	23	0	0	0	0	0	23	21	0	0	0	0	0
16.0111	Industrial Technology	396	82	0	14	0	0	14	68	13	0	0	0	0	0
16.0112	Instrumentation Technology	45	11	0	0	0	0	0	11	0	0	0	0	0	0
16.0113	Mechanical Technology	319	62	0	4	0	0	4	58	27	0	0	0	0	0
16.0120	Fluid Power Technology	29	0	0	0	0	0	0	0	0	0	0	0	0	0
16.0121	Industrial Hygiene/Safety	13	11	0	0	0	0	0	11	0	0	0	0	0	0
16.0200	Agri. Related Technology	97	8	0	5	0	0	5	3	0	0	0	0	0	0
16.0504	Food Service Supervisors	1837	64	5	14	0	0	19	45	155	16	6	35	5	31
16.0605	Police Science Technology	2278	1376	0	26	0	0	26	1350	167	0	0	0	0	0

Taxonomy Number	Taxonomy Title	Current Employ.	Labor Demand	Labor Supply						Student Interest	No. Avail. for Work	Student Outcomes				
				Vocational Education	Private Bus. & Indus. Trng	CETA	Private Schools	Total Supply	Net Demand			Primary Interest	Completing	Employed in Occup. Trnd. or Rel. Area		Avail-able for Work
														Number	Percent	
16.0610	Social Service Aides	796	82	0	0	0	0	0	0	82	188	0	0	0	0	0
16.0699	Educational Media Tech.	7	0	0	0	0	0	0	0	0	7	0	0	0	0	0
TOTAL TECHNICAL OCCUPATIONS		6132	1762	15	68	0	83	1679	805	54	25	40	18	72	18	33
17.0100	Air Conditioning	273	58	14	2	0	0	16	42	27	18	51	15	83	15	56
17.0200	Appliance Repair	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17.0301	Auto Body Repair	574	122	33	5	15	0	53	69	10	9	82	6	67	6	60
17.0302	Auto Mechanics	1278	278	85	9	17	0	111	167	89	61	65	40	66	40	45
17.0401	Aircraft Maintenance	45	8	37	0	0	0	37	-29	0	0	0	0	0	0	0
17.0600	Business Machine Maint.	74	2	0	0	0	0	0	2	0	0	0	0	0	0	0
17.0700	Commercial Art Occupations	143	22	68	0	0	0	68	-46	25	14	52	12	86	12	48
17.0900	Commercial Photography	25	9	0	0	0	0	0	9	0	0	0	0	0	0	0
17.1000	Construction/Maintenance	2600	416	0	2	18	0	20	396	0	0	0	0	0	0	0
17.1001	Carpentry	1372	543	133	95	0	0	228	315	77	70	86	46	66	46	60
17.1002	Electricity (Construction)	229	121	0	23	0	0	23	98	0	0	0	0	0	0	0
17.1003	Heavy Equipment (Constr.)	1361	137	0	1	0	0	1	136	0	0	0	0	0	0	0
17.1004	Masonry	251	107	25	0	0	0	25	82	18	15	79	9	60	9	50
17.1005	Painting/Decorating	485	99	10	23	0	0	33	66	0	0	0	0	0	0	0
17.1007	Plumbing/Pipefitting	287	121	0	0	0	0	0	121	0	0	0	0	0	0	0
17.1008	Dry Wall Installation	453	143	0	0	0	0	0	143	0	0	0	0	0	0	0
17.1009	Glaziers	6	3	0	0	0	0	0	3	0	0	0	0	0	0	0
17.1010	Roofing	452	404	0	0	0	0	404	0	0	0	0	0	0	0	0
17.1011	Floor Covering Mechanics	166	47	0	0	0	0	0	47	0	0	0	0	0	0	0
17.1012	Siding Applicators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17.1014	Structural Steel Workers	176	277	0	0	0	0	0	277	0	0	0	0	0	0	0
17.1015	Mobile Home Servicers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17.1100	Custodial Services	9867	1031	0	0	0	0	0	1031	0	0	0	0	0	0	0

Taxonomy Number	Taxonomy Title	Current Employ.	Labor Demand	Labor Supply					Student Interest	No. Avail. for Work	Completing		Student Outcomes					
				Vocational Education	Private Bus. & Indus. Trng.	CETA	Private Schools	Total Supply			Net Demand	Primary Interest	Number	Percent	Com-pleters	Employed in Occup. Trnd. or Rel. Area	Avail-able for Work	
											No.	%	No.	%				
17.1200	Diesel Mechanics	87	53	64	22	0	0	0	86	-33	126	45	30	65	29	97	29	64
17.1301	Architectural Drafters	39	7	15	0	0	0	0	15	-8	69	28	20	69	18	90	18	64
17.1303	Mechanical Drafters	279	47	10	2	0	0	0	12	35	11	24	18	72	14	78	14	58
17.1304	Structural Drafters	138	2	0	0	0	0	0	0	2	20	0	0	0	0	0	0	0
17.1400	Electrical Occupations	135	29	13	4	0	0	17	17	12	26	0	0	0	0	0	0	0
17.1402	Line Installers	398	96	0	1	0	0	1	1	95	0	0	0	0	0	0	0	0
17.1403	Motor Repairers	115	54	0	0	0	0	0	0	54	0	0	0	0	0	0	0	0
17.1501	Communications	223	107	30	1	0	0	31	31	76	0	0	0	0	0	0	0	0
17.1503	Radio/Television	90	81	23	1	0	10	34	34	47	24	0	0	0	0	0	0	0
17.1599	Radio/T.V. Broadcasting	88	2	0	0	0	0	0	0	2	98	0	0	0	0	0	0	0
17.1900	Graphic Arts Occupations	1718	189	54	2	0	0	56	56	133	35	20	19	79	15	79	15	75
17.1901	Composition, Makeup, Typeset.	488	35	0	0	0	0	0	0	35	19	0	0	0	0	0	0	0
17.1906	Bookbinding	263	23	0	0	0	0	0	0	23	0	0	0	0	0	0	0	0
17.2101	Instruments	242	26	0	0	0	0	0	0	26	7	0	0	0	0	0	0	0
17.2102	Watchmaking & Repair	7	23	0	0	0	0	0	0	23	13	0	0	0	0	0	0	0
17.2301	Foundry	57	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
17.2302	Machine Shop	259	59	21	4	20	0	45	45	14	34	0	0	0	0	0	0	0
17.2303	Machine Tool Operation	1664	422	86	16	0	0	102	102	320	7	18	14	74	11	79	11	61
17.2304	Metal Trades (Combined)	1678	329	9	1	0	0	10	10	319	13	9	10	83	5	50	5	56
17.2305	Sheet Metal	197	2	8	6	0	0	14	14	-12	4	0	0	0	0	0	0	0
17.2306	Welding/Cutting	1002	412	47	14	51	0	112	112	300	59	54	41	65	26	63	26	48
17.2307	Tool & Die Making	124	16	10	4	0	0	14	14	2	7	23	14	61	14	100	14	61
17.2602	Cosmetology	469	132	0	23	0	72	95	95	37	167	0	0	0	0	0	0	0
17.2700	Plastics	212	140	0	0	0	0	0	0	140	7	0	0	0	0	0	0	0
17.2800	Public Service Occupations	27	1	0	0	0	0	0	0	1	12	0	0	0	0	0	0	0
17.2801	Firefighter Training	0	0	0	0	0	0	0	0	0	26	0	0	0	0	0	0	0
17.2810	Urban Planning Aides	6	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
17.2901	Bakers	815	40	0	0	0	0	0	0	40	22	0	0	0	0	0	0	0

Taxonomy Number	Taxonomy Title	Current Employ.	Labor Demand	Labor Supply					Net Demand	Student Interest	No. Avail. for Work.	Completing		Student Outcomes	
				Vocational Education	Private Bus. & Indus. Trng.	CFETA	Private Schools	Total Supply				Number	Percent	Com-pleters	Avail-able for Work
											No.	%	No.	%	
17.2902	Cook/Chef	658	153	6	1	0	0	7	146	13	6	3	100	3	50
17.2903	Meat Cutters	761	123	0	0	0	0	0	123	18	0	0	0	0	0
17.2904	Waiters/Waitresses	172	202	0	0	0	0	0	202	59	0	0	0	0	0
17.3100	Small Engine Repairers	119	76	0	23	0	0	23	53	73	0	0	0	0	0
17.3300	Textile Prod. & Fabrication	325	64	0	0	0	0	0	64	9	0	0	0	0	0
17.3400	Leather Working	0	0	0	0	0	0	0	0	7	0	0	0	0	0
17.3500	Upholstering	76	26	0	0	18	0	18	8	0	0	0	0	0	0
17.3600	Woodworking Occupations	194	40	21	0	0	0	21	19	62	0	0	0	0	0
17.6001	Fluid Power Occupations	119	24	0	0	0	0	0	24	1	0	0	0	0	0
17.7001	Industrial Truck Operators	1087	210	0	0	0	0	0	210	18	0	0	0	0	0
17.7002	Truck Driving	2548	586	0	47	0	0	47	539	225	0	0	0	0	0
17.7100	Misc. Repair Occupations	7	26	0	0	0	0	0	26	8	0	0	0	0	0
17.7300	Manufacturing Inspection	206	32	0	0	0	0	0	32	0	0	0	0	0	0
	TOTAL TRADE & INDUSTRIAL	37243	7840	822	332	139	82	1375	6465	3238	477	263	74	263	55
	TOTALS FOR AREA XI	98646	22771	1731	1292	202	406	3631	19140	10868	1626	741	74	741	66



STATEWIDE REPORT



I. Introduction

The Career Education Needs Information System (CENIS) is a four-faceted data-gathering and reporting system with components of: (1) Labor Demand; (2) Labor Supply (Training Output); (3) Student Interests, and (4) Student Outcomes (Follow-up).

Initial impetus for developing the system was provided by the inter-agency Manpower and Job Market Information Committee (1967-70) which recognized the need for a systematic approach toward the gathering and reporting of manpower planning data.

CENIS Cycle I (1972-73) was developed and implemented by the Department of Public Instruction in close working cooperation with the Iowa Department of Job Service, the Iowa Development Commission, and other state agencies and organizations. Advisory committees were established to assist in the development of each component,

The second cycle of CENIS operated during Fiscal Year 1976, with several relatively minor changes occurring in survey methodology.

II. CENIS Cycle III

Cycle III of the Career Education Needs Information System (CENIS) functioned during Fiscal Year 1978, using basically the same methodology as that in CENIS II.

As an aid to data interpretation the following component descriptions and other explanatory comments may be helpful.

A. CENIS III Labor Demand Survey

1. Employers

As in CENIS I and II, the employer inventory was based primarily upon the Iowa Department of Job Service's listing of all Iowa employers of one or more, subject to state and federal job insurance regulations. Supplemental lists were prepared to encompass county, municipal, and school district employing units, as well as establishments headquartered out of state with branches in Iowa; since these firms were not identified on the JSI listing.

2. Sampling

From the statewide population of almost 60,000 employers, a stratified sample was drawn for each of the 15 merged areas (area school/area education agency delineation). For each area, all of the larger firms were included (all firms of 25 or more employees in the smaller areas, e.g., Area XIV, Creston; 50 or more in the medium sized areas, e.g., Area XVI, Burlington; and 75 or more in the larger areas, e.g.,

Area X, Cedar Rapids. The second stratification forced into the sample those firms which represented certain occupations which were essential to the survey but which might have been missed in random sampling. Following these two stratifications, the remainder of the sample was randomly selected until the predetermined (by the Iowa State Statistical Laboratory) sample size was reached for each area. Table 1 provides tabular information for this aspect of the survey. As noted by inspection of the table, the response rate clustered between 80% and 85%. Surprisingly, the statewide response rate of 82% is exactly the same as that noted for CENIS II, although individual areas indicated more fluctuation. Of the non-responses, 58 (6%) were duplicates; 92 (9%) were firms having no occupations applicable to CENIS; 501 (49%) were small firms with no full-time workers; 254 (25%) were firms which had gone out of business; and 110 (11%) were firms which refused to furnish information. The 110 refusals represented less than 2% of the statewide sample.

TABLE 1

SAMPLE SIZE AND RESPONSE RATES-CENIS III LABOR DEMAND SURVEY

Area	Sample Size	Usuable Responses	Response Rate	Area	Sample Size	Usuable Responses	Response Rate
I	400	333	83%	IX	488	388	80%
II	340	272	80%	X	493	412	84%
III	276	239	87%	XI	710	590	83%
IV	248	193	79%	XII	462	378	82%
V	368	307	83%	XIII	335	275	82%
VI	292	245	84%	XIV	246	199	81%
VII	422	352	83%	XV	326	271	83%
				XVI	305	242	79%
State wide	5711	4696	82%				

3. Occupations

Slightly less than 300 occupations requiring less than a baccalaureate degree were included in the CENIS III Labor Demand Survey. Input into the selection of the current list of occupations was obtained from DPI Career Education consultants, area school and secondary vocational-technical personnel, and other knowledgeable individuals and groups. Occupations selected for the survey encompassed the job areas for which training is currently given in secondary and area schools, plus potential new and emerging occupational areas. Skill levels in the surveyed occupations ranged from such comparatively low-skilled jobs as Custodians and Waiter-Waitress to such highly technical jobs as Civil Engineering Technican and Nurse, Associate Degree.

4. Survey Implementation

- a. Employer interviews were conducted by a private contracting firm, Central Surveys, Inc. of Shenandoah, Iowa. All sample employers with 25 or more workers were interviewed personally, while most smaller firms were interviewed via WATS line hookups from Central Surveys' headquarters office. All of the interviewing was completed in an 8 week period during the late summer 1977.
- b. Each participating employer received a letter of notification, co-signed by the State Superintendent of Public Instruction and the Director of the Iowa Development Commission several days before being contacted by Central Surveys.
- c. The survey instrument and methodology were identical with those used in the CENIS II Labor Demand Survey. Dictionary of Occupational Titles (DOT) classifications were used in the questionnaire, but were later converted to the Office of Education taxonomy code numbers used in the CE-4 (computerized enrollment and financial reporting) system. Brief job descriptions were provided for all interviewers, to clarify discrepancies between DOT and employer job classifications.
- d. Batches of completed survey instruments were submitted to the DPI by the contractor at least once weekly, where they were briefly hand-edited and sent to the Management Information Division for keypunching, and eventual transfer to tape.
- e. The completed computer tape of the labor demand sample survey information was delivered to the Iowa State Statistical Laboratory, where the data were sorted by merged area and occupation.
- f. Sample survey data were weighted with such factors included as size of firm, number of like firms in sample, non-responding like firms, etc.
- g. The weighting formulas were then applied via computer programs to transform the sample data to projected estimates reflecting the total labor demand picture for that particular occupation within a given merged area.
- h. Projected labor demand data from each merged area were combined to form a composite statewide report for each occupational area indicating current and projected employment, as well as an indication of the number of individuals being prepared to work in that occupation through formal (80 hours or more) in-plant training.

Additional output data indicated the portion of the projected demand resulting from expansion and from replacement (death, retirement, etc.). The CENIS III projected total labor demand identified was: 1978, 69,678 - 23,734 expansion, 45,944 replacement; 1980, 102,561 - 42,733 expansion, 59,828 replacement; 1982, 113,481 - 53,746 expansion, 59,735 replacement.

B. CENIS III Labor Supply Survey

Four different sources of labor supply (training output) are included: (1) Career Education, (2) Private Business and Industry Training, (3) CETA, and (4) Private Schools. Individual descriptions of these CENIS III Labor Supply factors follow:

1. Career Education: This CENIS entry represents trainees from the preparatory (vocational-technical) programs in Iowa's high schools and area schools. For the CENIS III report, a total of 21,024 trainees was identified, based upon the FY 1977 CE-4 reimbursement report of enrollments. At the secondary level, only 12th grade vocational students were reported, in order to reflect those trainees who were currently available for work. The supply figure does not represent either total enrollment or completions; since both figures might actually indicate an over-estimate of those individuals who will actually enter that occupation. To obtain the career education supply figure, the placement rate (percent available for work employed in the occupation trained or a related occupation) is applied against the enrollment figure for each taxonomy (course) area, and the result is entered as the Career Education factor of the Labor Supply component.
2. Private Business and Industry: This information was extracted from the Labor Demand Survey form wherein employers were asked to identify those workers who were being prepared for the occupation through a formal (80 hours or more) in-plant training program. A total of 4363 such trainees were reported in CENIS III.
3. CETA: This training source represents trainees funded under the Comprehensive Employment and Training Act (CETA). CENIS III entries indicated a total of 363 trainees in this category.
4. Private Schools: Early each calendar year, a mail survey is conducted with non-public schools offering occupational training programs, to discover the location and volume of such training in each merged area in Iowa. Example of such schools are those institutions offering training in business and clerical fields, cosmetology, nursing, X-ray technology, etc. The questionnaire distributed covers the

same occupational areas encompassed in the CENIS III Labor Demand Survey, and requests that the enrollments and anticipated completions for the current school year be indicated for each applicable occupation.

In the 1977 survey, a statewide training output of 1693 trainees was reported from this facet of Labor Supply.

5. Total Supply: The four facets of labor supply (training output are summed, to indicate the total supply of potential workers available within each taxonomy (course) area. In CENIS III, the statewide total supply figure for all training areas was 27,443 individuals.

C. CENIS III Student Interest Survey

The Student Interest Survey coordinated by the Guidance Services Section is now conducted annually with data summaries distributed to all survey participants each year. Data for the Student Interest Component of CENIS III were derived from the FY 1977 Student Interest Survey. Highlights of this survey follow:

1. The Student Interest Survey questionnaire is administered by secondary school counselors to a seven (7) percent sampling of 11th and 12th grade students in all public and private schools in Iowa. Administration of the instruments is accomplished in a small group format, which allows close interaction with the counselor and promotes more realistic occupational choices.
2. The occupational choice portion of the survey form is designed to reflect the degree of certainty by the students that they will actually enter their first-choice occupation. This certainty factor is added into the data processing computations so that the final projected numbers indicate only those students who have expressed a high degree of certainty concerning their occupational choices.
3. Although the majority of the Labor Demand Occupations were also encompassed by the Student Interest Survey, some of the extremely specific jobs were excluded (although all OE taxonomy areas were covered). To broaden the scope of usefulness of this survey, many professional occupations were included resulting in a list of approximately 330 coded occupations from which the student could choose, and enter the code number of the questionnaire on the survey form.
4. In indicating future plans for the first year after high school the distribution of responses was as follows:

4-year college or university - 33.2%
Full-time Employment - 28%
Area School/Community College - 17.6%
Private Trade, Technical or Business School - 11.6%
Military Service - 4.3%
Private Junior College - 1.9%

5. The five top occupational choices were: Farmer, 4,263; Registered Nurse, 2,641; Automobile Mechanic, 2,507; Secretary, 2,288; and Elementary School Teacher, 2,007.
6. Statewide 59,802 (projected figure) 11th and 12th graders indicated a first interest, with high certainty in the occupations covered in the CENIS III Labor Demand Survey.

D. CENIS III Student Outcomes (Annual Vocational Follow-up Survey)

This survey attempts to obtain an assessment of the effectiveness of preparatory career education programs - one year after the students have left (completed or withdrawn from) the program. Prominent features of the survey include the following:

1. All of the preparatory career education O.E. taxonomies (course areas) taught in 1975-76 at the twelfth grade level in high schools and at the 15 area schools were encompassed in the survey, which was coordinated by the Guidance Services Section of the DPI.
2. Participating secondary schools and the area schools conduct the survey, collect data from the former students, and submit a data summary form to the DPI for each taxonomy area (excluding only the 09.01 Consumer and Homemaking Program area, which does not prepare students for specific occupational areas).
3. At the postsecondary level, follow-up data was received from 12,595 former students; while 8,587 individuals who were former secondary vocational students responded to the survey.
4. Statewide survey results, encompassing all taxonomies, high schools and area schools combined, indicated that 74% of the 1975-76 students had completed their training programs, while 59% of the vocational program leavers were currently (1977) employed in the occupation for which they were trained, or in a closely related occupation. Over 90% of the former students were employed within the state, with 9% of postsecondary and 4% of secondary program completers employed outside Iowa's borders.

E. CENIS III Interface

The most significant output items from each of the four CENIS III components were interfaced to provide a manpower/vocational education profile for each Office of Education (OE) taxonomy area. These are further arranged and subdivided by vocational education service areas, i.e., 01 - Agriculture; 04 - Marketing and Distribution; 07 - Health Occupations; 09.02 - Home Economics Related Occupations; 14 - Office Occupations; 16 - Technical Occupations; and 17 - Trade and Industrial Occupations. Other comments pertaining to the CENIS III Interface follow:

1. Perhaps the most important aspect of the Interface is the Net Demand entry, i.e.; the four sources of labor supply are summed to form a Total Supply figure and the difference between this number and the Labor Demand figure is computed to derive the Net Demand (demand less supply). This entry is essential in manpower planning; since it deducts the number of individuals being prepared for an occupation from the total demand - thus affording a much more realistic indication of actual job opportunities.
2. The CENIS III Interface presents the projected information from each of the surveys, and consists of the following columns: Taxonomy Number; Taxonomy Title; Current Employment (projected figure, as of June, 1977); Labor Demand (projected figure for 1980); Labor Supply, with its subdivisions for training output (all based upon 1977 actual enrollment data), i.e., Career Education, Private Business and Industry, CETA, Private Schools, and a summed total for Total Supply; Net Demand (the difference between Demand and Total Supply); Student Interest; and several columns on Student Outcomes (follow-up) indicating the number and percent of completers, number and percent of individuals available) for work who were employed in the occupation for which they were trained (or in a closely related occupation), the number and percent employed in unrelated occupations, and the number and percent continuing in higher education.

III. Data Limitations:

Surveys are utilized to ascertain labor demand, training output from private schools, student interests, and the annual vocational follow-up. Any type survey is vulnerable to some degree of error in drawing the sample, obtaining a representative response, projecting from sample data, etc. Three of the CENIS III surveys (private schools, student interests, annual follow-up), are of simple design, with excellent response rate and thus with minimal change of survey error. Accordingly, the following comments will apply only to the labor demand survey.

A. Validity of Employer Predictions

Employer predications of future manpower needs are limited by two major considerations - (1) their willingness to predict future employment needs by occupation and, (2) their ability to make such predictions. Many employers are understandably reluctant to attempt to predict their employment needs one, two, and five years into the future. Some may make a straight-line prediction, showing practically no change from the current status. Others will make a sincere effort to predict future needs, fully realizing the uncertainties created by constantly changing state, national and worldwide economic conditions. Many small and medium-sized firms lack expertise in long-range planning and predictions.

B. Sampling Problems

Due to many technical problems involved in establishing the employer inventory, the drawing of a truly representative sample for each occupation in each merged area becomes quite difficult. In some instances, the total number of employees for each sample firm is known, but in other instances, this information is not fully available especially with the employers on the supplemental lists, where no information from Job Services of Iowa is available. During CENIS II, a supplemental health survey was conducted, in order to correct a sampling discrepancy. With this supplemental survey, almost total coverage of hospitals and nursing homes was achieved. In CENIS III, a few such institutions were not included, which changed the projection formulas and resulted in somewhat smaller estimates for employment and future demand projections.

C. Conclusions

Despite the fallibility of employer predictions, and the problems encountered in sampling, weighting of responses, and developing projections; the employer survey is felt to be a viable approach toward acquiring labor demand data for the specific occupations for which data are needed on a geographical basis appropriate for vocational education planning purposes. Many other local and state agencies and institutions use CENIS labor demand and supply data, as an indicator of present and future manpower needs.

IV. Labor Market Trends and Forecasts Indicated by CENIS Cycles I, II, and III.

A. Comparison of Data from Three CENIS Cycles.

Since some changes have occurred in survey techniques, sampling methods, and the arrangement of specific occupations

within taxonomy classifications during the three cycles; it is perhaps unwise to draw irrevocable conclusions from data comparisons. However, in spite of some inconsistencies, general trend lines can be observed.

Table 2 indicates the major changes in labor demand/supply, student interest, and student outcome data between CENIS I, II, and III for the vocational education occupational service areas:

B. Analysis of Data Trends

Inspection of the Table reveals some fluctuation between occupational service areas for the three cycles, but indicates an overall long-range growth in the various aspects. Completion and placement rates also vary, but still indicate an overall consistency. To further illustrate the consistency in labor demand trends throughout the 3 cycles, an examination of the top 5 taxonomy areas in terms of net labor demand reveals that 4 of those top 5 are the same areas in all 3 survey periods - General Office Clerks, Truck Drivers, Food Preparation and Services, and Machine Tool Operators,

C. Data Analysis - CENIS III Results

1. Labor Demand/Supply

One indication of training needs is the ratio of expansion to replacement in the labor demand projections. Table 3 presents these ratios arranged by occupational service areas. Within each service area, many individual occupational areas vary widely in their expansion/replacement ratio from this summary.

TABLE 3

LABOR DEMAND EXPANSION/REPLACEMENT RATIOS

Service Area	Expansion %	Replacement %
Agriculture/Agribusiness	0%	100%
Distributive Occupations	50%	50%
Health Occupations	32%	68%
Home Economics Related Occup.	21%	79%
Office Occupations	36%	64%
Technical Occupations	51%	49%
Trade & Industrial Occupations	45%	55%
Total - All Service Areas	36%	64%

TABLE 2

LABOR MARKET TRENDS INDICATED BY CENIS CYCLES I, II, AND III

Occup. Service Area	CENIS I (1972-73)			CENIS II (1975-76)			CENIS III (1977-78)			
	Net Demand	Student Interest	Plcmt. Rate	Net Demand	Student Interest	Plcmt. Rate	Net Demand	Student Interest	Plcmt. Rate	
01-Agriculture Agribusiness	-686	6,549	69%	3,050	5,737	92%	-166	11,073	74%	73%
04-Distributive Education	7,518	9,873	45%	8,078	8,673	73%	12,033	6,680	68%	45%
07-Health Occupations	-1,077	5,457	83%	6,821	8,156	90%	3,906	9,051	62%	65%
09-02-Home Econ. Related	-68	1,610	81%	1,168	1,380	86%	7,701	1,711	81%	51%
14-Office Occupations	6,313	11,317	62%	12,918	8,378	78%	13,081	10,827	67%	54%
16-Technical Occupations	724	1,209	55%	1,954	1,263	93%	5,781	3,933	42%	49%
17-Trade & Indus. Occupations	15,723	18,598	49%	35,948	15,940	90%	33,382	17,067	79%	57%
Total	26,908	54,001	50%	69,937	49,527	86%	75,118	59,802	74%	59%

2. Student Interest Compared with Net Labor Demand

Program planners must consider several other factors in addition to labor demand and supply in establishing priorities. One essential consideration is the potential availability of students interested in vocational programs. Table 4 compares the net labor demand with the expressed high certainty occupational preference of the 11th and 12th graders in the CENIS III Student Interest Survey.

TABLE 4

COMPARISON OF NET LABOR DEMAND AND STUDENT INTERESTS

Service Area	Net Labor Demand	Student Interest
Agriculture/Agribusiness	-766	11,073
Distributive Occupations	12,033	6,680
Health Occupations	3,906	9,051
Home Economics Occupations	7,701	1,711
Office Occupations	13,081	10,827
Technical Occupations	5,781	3,933
Trade & Industrial Occupations	33,382	17,067
Total All Areas	75,118	59,802

Table 5 is presented for informational purposes only. Statewide training priorities are established annually through application of a systematic rating and ranking process which considers the factors of manpower needs, student availability, and program effectiveness (attrition, placement, and cost/benefit). The publication Prioritizing Iowa's Training Needs contains the actual ratings for each component as well as the updated listings of Primary Training Needs Areas and Priority Program Areas.

3. Highest Net Demand Training Areas

It must be noted that the ranking in Table 6 considers only net demand. Several of these occupations are high turnover in nature, because of comparatively low wages, less-than-desirable working hours (evenings, week-ends, split shifts, etc.) or other factors. All such related factors should be considered before decisions are made concerning occupational choice, or the development, modification, or elimination of vocational programs.

TABLE 5

TEN TRAINING AREAS WITH HIGHEST COMBINATION
OF NET DEMAND AND STUDENT INTERESTS

OE Number	Training Area	Net Demand	Student Interest
14.0303	General Office Clerks	5,686	1,719
17.7002	Truck Driving	5,336	1,260
14.0702	Secretaries	1,446	4,080
09.0203	Food Mgmt., Production & Services	5,307	74
16.0605	Police Science Technology	4,165	878
01.0100	Agricultural Production	-991	5,652
17.1001	Carpentry	2,486	1,549
07.0303	Nursing Assistance	2,974	520
14.0102	Bookkeepers	1,829	1,146
17.2304	Metal Trades, Comb. (Press Opr's., etc.)	2,844	77

TABLE 6

THE TEN TRAINING AREAS WITH HIGHEST NET DEMAND

Rank	Taxonomy Number	Occupational Area	Net Demand
1	14.0303	General Office Clerks	5686
2	17.7002	Truck Driving	5336
3	09.0203	Food Mgmt; Prod., Svcs. (Food Prep. & Serving)	5307
4	16.0605	Police Science Technology	4165
5	07.0303	Nursing Assistance	2974
6	17.2303	Machine Tool (Production Machine) Operators	2860
7	17.2304	Netal Trades; Comb. (Mach. Set-up; Press Operators)	2844
8	17,1001	Carpentry	2486
9	17.1100	Custodial Services	2412
10	04.0800	General Merchandise	1984

4. Program Effectiveness Rankings

TABLE 7
OCCUPATIONAL AREAS WITH HIGHEST COMBINATION
OF COMPLETION/PLACEMENT RATES

Rank	Taxonomy Number	Occupational Area	Completion Rate	Placement Rate
1	01.0401	Food Products	100%	93%
2	14.0400	Information Communication	100%	83%
3	07.0303	Nursing Assistance	97%	85%
4	01.0100	Agricultural Production	94%	79%
5	17.2904	Waiter/Waitress	100%	72%
6	17.7002	Truck Driving	100%	71%
7	17.3600	Woodworking Occupations	92%	74%
8	04.0800	General Merchandise	91%	73%
9	04.0900	Hdwe., Bldg., Mtl's., Farm & Grdn. Supp.	96%	68%
10	14.0202	Keypunch Operators	82%	80%

D. CENIS III Interface

Table 8 presents the Iowa CENIS III Interface, showing the statewide profile of labor demand, labor supply, net labor demand, student interests and student outcomes.

E. Taxonomy - D.O.T. Conversion

Table 9 identifies the specific Dictionary of Occupational Titles (D.O.T.) classifications encompassed in each taxonomy listing in CENIS III. The D.O.T. titles reflect those occupations actually surveyed during the CENIS III Labor Demand Survey.

TABLE 8
 CAREER EDUCATION NEEDS INFORMATION SYSTEM
 INTERFACE SUMMARIES - CYCLE 3 STATE TOTALS

Taxonomy Number	Taxonomy Title	Current Employ.	Labor Demand	Labor Supply						Net Demand	Student Interest Primary	No. Avail. for Work	Student Outcomes				
				Vocational Education	Private Bus. Indus. Trng.	CEFA	Private Schools	Total Supply	Completing				Employed in Occup. Trnd. or Rel. Area	Com-pleters	Avail-able for Work		
											Number	Percent	No.	%	No.	%	
01.0100	Agri. Production	163804	1271	2262	0	0	0	0	2262	-991	5652	2014	94	1042	52	1107	79
01.0101	Animal Science	49	7	213	0	0	0	0	213	-206	0	94	67	81	86	97	73
01.0200	Agri. Supplies/Services	3160	681	788	15	0	0	0	803	-122	834	536	89	301	56	320	71
01.0301	Agri. Power & Machinery	2687	711	363	50	1	0	0	414	297	441	282	79	170	60	195	68
01.0401	Food Products	1612	180	57	5	0	0	0	62	118	0	37	100	27	73	27	93
01.0502	Floriculture	537	46	56	2	0	0	0	58	-12	632	42	75	28	67	28	64
01.0506	Turf Management	496	140	19	3	0	0	0	22	118	227	11	37	11	100	12	40
01.0511	Landscape Nur. & Gdn. Ctr.	221	114	57	5	0	0	0	62	52	406	33	32	28	85	28	27
01.0600	Agri. Resources	69	8	28	0	0	0	0	28	-20	2881	42	95	15	36	15	50
	TOTAL AGRICULTURE	172635	3158	3843	80	1	0	0	3924	-766	11073	3091	74	1703	55	1829	73
04.0100	Advertising Services	320	109	13	0	0	0	0	13	96	647	58	98	9	16	9	53
04.0200	Apparel and Accessories	2378	715	285	0	0	0	0	285	430	827	325	79	160	49	160	56
04.0300	Automotive	4717	1360	123	64	0	0	0	187	1173	220	91	82	56	62	57	63
04.0400	Finance & Credit-Banking	7237	1771	13	147	0	0	0	160	1611	613	26	8	11	42	11	4
04.0401	Fin. & Credit-Consumer Cr.	183	51	0	15	0	0	0	15	36	9	0	0	0	0	0	0
04.0402	Finance & Credit-Securities	417	277	0	20	0	0	0	20	257	0	0	0	0	0	0	0
04.0403	Finance & Credit-Agri-Bank.	207	79	0	0	0	0	0	0	79	0	0	0	0	0	0	0
04.0600	Food Distribution	4809	1187	300	9	0	0	0	309	878	680	369	92	178	48	178	63
04.0800	Gen. Merchandise	8421	2125	91	36	0	14	0	141	1984	521	310	91	154	50	171	73
04.0801	Gen. Merchandise Specialist	4076	513	108	70	0	0	0	178	335	1107	86	40	57	66	60	31
04.0900	Hdwe. Bld. Mt'ls, Farm, Grdn	4574	844	77	52	0	0	0	129	715	78	89	96	46	52	46	68
04.1000	Home Furnishings	72	2	28	0	0	0	0	28	-26	657	19	63	10	53	10	42

TABLE 8, page 2

Taxonomy Number	Taxonomy Title	Current Employ.	Labor Demand	Labor Supply						Student Interest	No. Avail. for Work	Student Outcomes				
				Vocational Education	Private Bus. Indus. Trng.	CETA	Private Schools	Total Supply	Net Demand			Primary Interest	Complet- ing	Employed in Occup. Trnd. or Rel. Area	Avail- able For Work	
											Number	Percent	Com- pleters	%	No.	%
04.1100	Hotel & Lodging	392	10	28	1	0	0	0	29	-19	139	100	9	43	9	60
04.1200	Indus. Marketing	6354	1628	14	68	0	0	82	82	1546	59	21	8	38	8	26
04.1300	Insurance	1829	445	21	137	0	0	158	287	287	118	2	0	0	0	0
04.1600	Petroleum	3864	1884	52	1	0	0	53	1831	1831	240	96	37	39	37	50
04.1700	Real Estate	2212	738	110	47	0	0	157	581	581	225	0	0	0	0	0
04.1800	Recreation & Tourism	344	143	0	0	0	21	21	122	122	475	14	5	36	5	45
04.1900	Transportation	836	138	38	4	0	0	32	106	106	65	13	6	46	6	67
04.2100	Tool & Equipment Rental	94	20	9	0	0	0	9	11	11	0	0	0	0	0	0
	TOTAL DISTRIBUTIVE	53336	14039	1300	671	0	35	2006	12033		6680	68	746	48	767	45
	EDUCATION															
07.0101	Dental Assisting	1258	212	272	0	0	9	281	-69	849	149	76	126	85	128	70
07.0102	Dental Hygiene	309	19	43	0	0	0	43	-24	393	12	80	9	75	9	75
07.0103	Dental Lab. Technicians	326	43	20	2	0	0	22	21	34	44	18	18	100	18	41
07.0200	Medical Lab. Technicians	824	255	20	29	0	0	49	206	15	21	26	15	58	15	71
07.0203	Medical Lab. Assistants	235	50	88	1	0	0	89	-39	764	76	75	43	57	44	58
07.0301	Nursing (Assoc. Degree)	8365	2292	1438	661	2	134	2235	57	2641	431	76	378	88	403	76
07.0302	Practical Nurse	3516	1481	1321	20	24	42	1407	74	934	795	70	641	81	677	69
07.0303	Nursing Assistance	10828	5425	1850	566	7	28	2451	2974	520	136	183	115	63	115	85
07.0305	Surgical Technicians	343	120	120	2	1	1	124	-4	184	89	72	55	76	57	64
07.0307	Home Health Aide	227	130	0	0	0	0	0	130	0	0	0	0	0	0	0
07.0401	Occupational Therapy	97	29	23	0	0	0	23	6	289	22	21	14	67	14	64
07.0402	Physical Therapy	323	62	0	1	0	0	1	61	1049	0	0	0	0	0	0
07.0410	Recreational Therapy	510	233	0	1	0	0	1	232	84	0	0	0	0	0	0
07.0501	Radiologic Technology	479	145	15	80	0	69	164	-19	42	2	3	0	0	1	50
07.0502	Radiation Therapy	12	6	0	0	0	0	6	0	0	0	0	0	0	0	0
07.0503	Nuclear Medical Technicians	33	12	0	0	0	0	12	25	0	0	0	0	0	0	0
07.0603	Optometrist Assistants	157	125	0	0	0	0	125	183	0	0	0	0	0	0	0
07.0701	Environmental Hlth. Tech.	11	0	7	0	0	0	7	-7	49	15	34	8	53	8	21

TABLE 8, page 3

Taxonomy Number	Taxonomy Title	Current Employ.	Labor Demand	Labor Supply						Student Interest	No. Avail. for Work	Student Outcomes					
				Vocational Education	Private Bus. Indus. Trng.	CETA	Private Schools	Total Supply	Net Demand			Primary Interest	Number	Percent	Com-pleters	Employed in Occup. Trnd. or Rel. Area	Avail-able for Work
07.0801	Mental Health Technicians	683	69	0	2	0	0	0	2	67	121	0	0	0	0	0	
07.0810	Alcoholism Counselors	104	29	0	0	0	0	0	0	29	90	0	0	0	0	0	
07.0900	Hlth. Care Facility Admin.	510	40	8	5	0	0	0	13	27	46	128	4	67	4	3	
07.0903	Respiratory Therapy	315	125	46	5	0	2	53	72	72	62	72	23	82	23	32	
07.0904	Medical Assistants	635	157	242	0	0	0	242	-85	0	0	209	124	82	127	61	
07.0907	Medical Emergency Tech.	121	39	0	22	0	0	22	17	55	55	0	0	0	0	0	
07.0908	Food Service Supervisors	157	30	6	1	0	0	7	23	188	9	3	2	67	2	22	
07.0910	Orthopaedic Assistants	44	0	15	0	0	0	15	-15	295	13	11	85	10	91	77	
07.0914	E.E.G./E.K.G. Technicians	110	34	0	5	0	0	5	29	69	0	0	0	0	0	0	
	TOTAL HEALTH OCCUP.	30532	11162	5534	1403	34	285	7256	3906	9051	2566	1999	62	1585	79	1655	65
09.0201	Care & Guid. of Child.	1616	336	216	0	0	0	216	120	1188	118	99	62	46	46	52	44
09.0202	Clothing Mgmt. Prod. & Svcs.	2499	768	110	6	0	0	116	652	138	31	30	81	20	67	20	65
09.0203	Food Mgmt. Prod. & Svcs.	13172	5699	391	1	0	0	392	5307	74	154	200	92	78	39	81	53
09.0204	Home Furish. & Equip. Svcs.	766	138	63	3	0	0	66	72	113	45	43	70	19	44	23	51
09.0205	Instit./Home Mgr & Supp Svcs	4289	1615	59	6	0	0	65	1550	198	6	6	100	5	83	5	83
	TOTAL HOME EC. REL. OCCUP.	22342	8556	839	16	0	0	855	7701	1711	354	378	81	168	44	181	51
14.0101	Accountants	2125	416	241	26	1	148	416	0	863	328	201	51	113	56	126	38
14.0102	Bookkeepers	14864	2050	154	14	5	48	721	1829	1146	230	144	54	79	55	90	39
14.0201	Computer/Console Operators	1849	385	31	82	0	18	131	254	0	101	35	33	26	74	26	26
14.0202	Keypunch Operators	1387	376	191	4	0	32	227	149	327	112	94	82	90	96	90	80
14.0203	Programmers	804	261	261	17	1	29	308	-47	1073	175	111	54	71	64	84	48
14.0204	Systems Analysts	445	110	47	1	0	0	48	62	302	55	16	29	12	75	33	60

TABLE 8, page 4

Taxonomy Number	Taxonomy Title	Current Employ.	Labor Demand	Labor Supply						Student Interest	No. Avail. For Work	Student Outcomes					
				Vocational Education	Private Bus. Indus. Trng.	CETA	Private Schools	Total Supply	Net Demand			Primary Interest	Number	Percent	Com-pleters	Employed in Occup. Trng. or Rel. Area	Avail-able for Work
											No.	%	No.	%	No.	%	
14.0303	General Office Clerks	18479	6621	773	52	95	15	935	5686	1719	772	816	82	479	59	508	66
14.0400	Information Communication	1026	225	20	0	0	55	75	150	21	24	37	100	20	54	20	83
14.0410	Medical Records Clerks	479	143	0	0	0	0	0	0	143	0	0	0	0	0	0	0
14.0503	Shipping/Receiving Clerks	3797	937	0	26	0	0	26	911	67	20	27	100	17	63	17	85
14.0601	Education Assistants	8354	178	5	23	0	0	28	150	138	7	8	100	6	75	6	86
14.0701	Executive Secretary	2849	346	68	2	0	0	70	276	0	161	68	41	62	91	67	42
14.0702	Secretaries	8897	2410	668	6	7	283	964	1446	4080	830	599	61	298	50	437	53
14.0703	Stenographers	1412	260	0	0	0	0	0	260	400	0	0	0	0	0	0	0
14.0805	Office Managers	2609	201	0	2	0	0	2	199	49	0	0	0	0	0	0	0
14.0901	Clerk Typists	5187	1813	209	0	0	0	200	1613	642	148	213	89	100	47	100	68
	TOTAL OFFICE OCCUPATIONS	74563	16732	2659	255	109	628	3651	13081	10827	2963	2369	67	1373	58	1604	54
16.0105	Chemical Technicians	864	138	0	3	0	0	3	135	21	0	0	0	0	0	0	0
16.0106	Civil Technology	1239	263	51	39	0	0	90	173	90	51	31	53	19	61	24	47
16.0107	Electrical Technology	300	53	0	15	0	0	15	38	0	0	0	0	0	0	0	0
16.0108	Electronic Technology	691	114	357	6	1	0	364	-250	1052	338	174	49	143	82	167	49
16.0109	Electromechanical Technology	109	20	25	1	0	0	26	-6	32	17	4	22	2	50	7	41
16.0110	Environ. Control Technology	995	226	0	119	0	0	119	107	43	0	0	0	0	0	0	0
16.0111	Industrial Technology	3206	683	0	94	0	0	94	589	33	0	0	0	0	0	0	0
16.0112	Instrumentation Technology	179	48	0	7	0	0	7	41	0	0	0	0	0	0	0	0
16.0113	Mechanical Technology	1632	435	163	33	1	0	197	238	127	142	88	58	76	86	78	55
16.0120	Fluid Power Technology	46	7	0	0	0	0	0	7	1	0	0	0	0	0	0	0
16.0121	Industrial Hygiene/Safety	99	20	0	1	0	0	1	19	6	0	0	0	0	0	0	0
16.0200	Agric.-Related Technology	329	123	0	5	0	0	5	118	0	0	0	0	0	0	0	0

TABLE 8, page 5

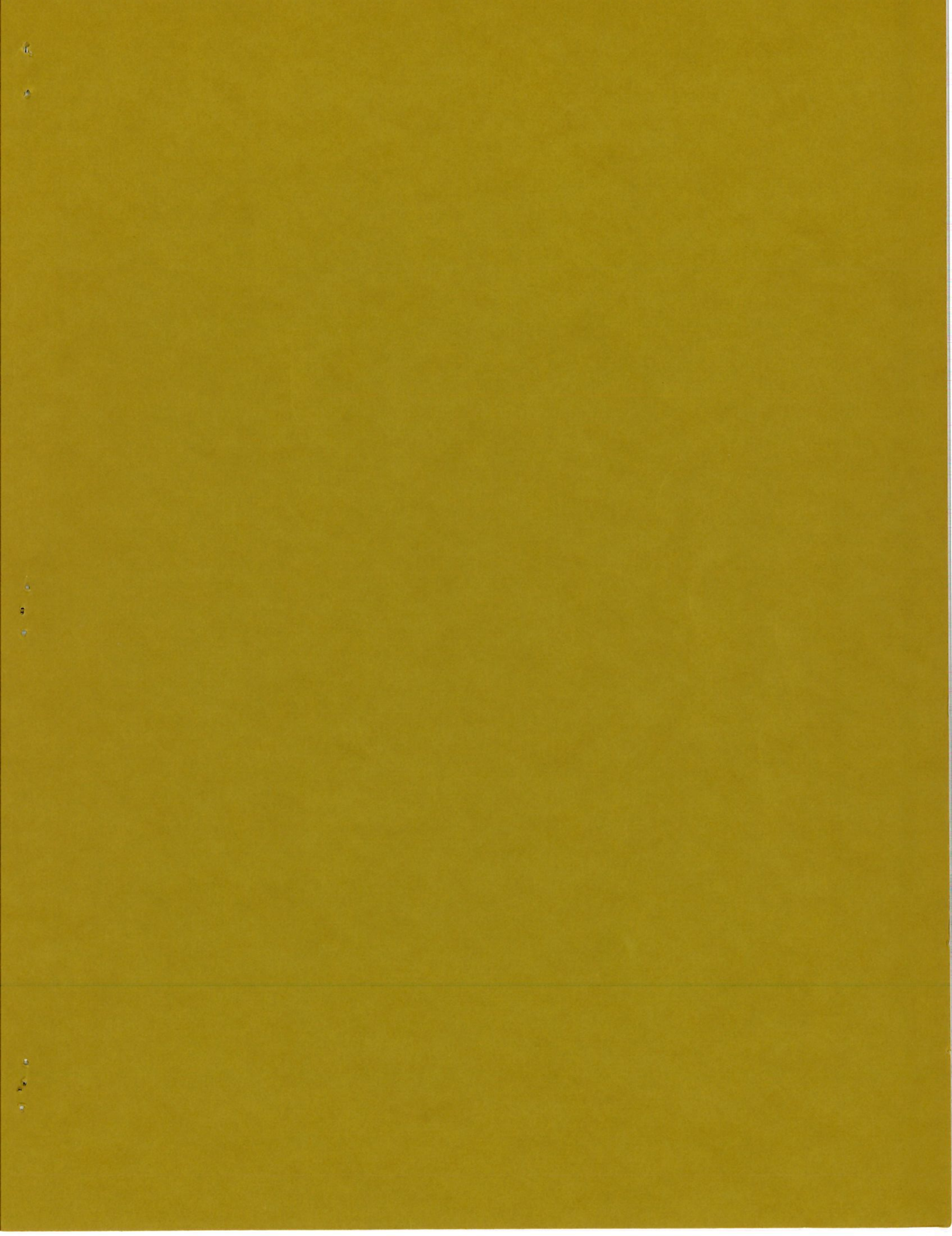
Taxonomy Number	Taxonomy Title	Current Employ.	Labor Demand	Labor Supply						Student Interest	Completing		Student Outcomes			
				Vocational Education	Private Bus.	Indus. Trng.	CETA	Private Schools	Total Supply		Net Demand	Primary Interest	No. Avail. for Work	Number	Percent	Com-pleters
												No.	%	No.	%	
16.0504	Food Service Supervisors	3261	338	12	55	0	0	0	67	271	401	32	6	18	5	16
16.0605	Police Science Technology	7220	4426	142	119	0	0	0	261	4165	878	137	49	36	45	92
16.0610	Social Services Aides	1025	126	0	3	0	0	2	123	1223	0	0	0	0	0	0
16.0699	Educational Media Tech.	28	26	13	0	0	0	13	13	26	9	5	5	56	5	56
	TOTAL TECHNICAL	21223	7046	763	500	2	0	1265	5781	3933	726	357	42	295	83	49
17.0100	Air Conditioning	1574	728	148	9	14	0	171	557	141	118	99	70	55	61	52
17.0200	Appliance Repair	912	97	14	19	0	0	33	64	29	35	34	77	17	50	51
17.0301	Auto Body Repair	2024	671	343	6	2	0	351	320	766	355	235	74	135	57	59
17.0302	Auto Mechanics	7428	2185	1181	143	40	0	1364	821	2507	631	527	68	304	58	54
17.0401	Aircraft Maintenance	121	27	115	0	0	0	115	-88	192	53	35	59	25	71	51
17.0600	Business Machine Maint.	158	19	12	0	0	0	12	7	1	16	13	72	8	62	9
17.0700	Commercial Art Occupations	1071	190	125	1	1	0	127	63	484	60	52	76	33	63	55
17.0900	Commercial Photography	299	61	97	1	0	0	98	-37	1099	44	37	77	30	81	68
17.1000	Construction/Maintenance	4608	976	0	7	0	0	7	969	1113	43	57	98	29	51	70
17.1001	Carpentry	7761	3598	934	175	3	0	1112	2486	1549	301	294	76	178	61	64
17.1002	Electricity (Construction)	2121	557	69	31	2	0	102	455	322	68	69	83	40	58	63
17.1003	Heavy Equipment (Constr.)	5283	1183	75	18	0	0	93	1090	441	17	10	53	5	50	41
17.1004	Masonry	1451	452	96	2	0	0	98	354	262	71	61	72	38	62	41
17.1005	Painting & Decorating	1069	409	7	23	0	0	30	379	136	14	15	100	8	53	57
17.1007	Plumbing/Pipefitting	1737	342	58	17	3	0	78	264	265	50	43	73	29	67	68
17.1008	Dry Wall Installation	639	320	2	0	0	0	2	318	0	0	0	0	0	0	0
17.1009	Glaziers	234	85	1	0	0	0	1	84	0	0	0	0	0	0	0
17.1010	Roofing	1472	793	3	0	0	0	3	790	0	0	0	0	0	0	0
17.1011	Floor Covering Mechanics	525	167	0	0	0	0	0	167	17	0	0	0	0	0	0

TABLE 8, page 6

Taxonomy Number	Taxonomy Title	Current Employ.	Labor Demand	Labor Supply						Student Interest	No. Avail. For Work	Completing		Student Outcomes	
				Vocational Education	Private Bus. Indus. Trng.	CETA	Private Schools	Total Supply	Net Demand			Primary Interest	Number	Percent	Com-pleters
17.1012	Siding Applicators	140	32	0	0	0	0	0	0	32	0	0	0	0	0
17.1014	Structural Steel Workers	1183	732	0	15	0	0	0	15	717	0	0	0	0	0
17.1015	Mobile Home Services	125	57	0	2	0	0	2	55	0	0	0	0	0	0
17.1100	Custodial Services	16256	2465	29	5	19	0	53	2412	22	67	33	55	37	55
17.1200	Diesel Mechanics	584	228	178	22	0	0	200	28	513	103	59	55	56	54
17.1301	Architectural Drafters	443	93	74	23	0	0	97	-4	368	107	63	56	49	46
17.1303	Mechanical Drafters	1013	254	92	11	0	0	103	151	156	102	72	60	55	54
17.1304	Structural Drafters	253	84	14	0	0	0	14	70	67	15	11	69	8	73
17.1400	Electrical Occupations	1158	191	49	36	0	0	85	106	85	66	46	62	28	61
17.1402	Line Installers	1566	151	46	58	1	0	105	46	0	44	37	80	34	92
17.1403	Motor Repairers	330	92	2	0	0	0	2	90	0	2	2	100	2	100
17.1501	Communications	1054	219	61	1	0	0	63	156	0	43	37	77	31	84
17.1503	Radio/Television	349	148	65	1	2	10	78	70	168	80	48	55	28	58
17.1599	Radio/TV Broadcasting	398	-13	20	6	0	0	26	-39	661	24	9	38	8	89
17.1900	Graphic Arts Occupations	3069	526	83	34	0	0	117	409	198	94	72	63	39	54
17.1901	Composition Makeup Typeset.	1303	261	16	4	0	0	20	241	20	0	0	0	0	0
17.1906	Bookbinding	436	58	0	0	0	0	58	0	0	1	1	100	0	100
17.2101	Instruments	574	56	97	21	0	0	118	-62	20	59	48	79	45	94
17.2102	Watchmaking & Repair	85	35	0	0	0	0	0	35	24	1	1	100	1	100
17.2301	Foundry	1631	575	3	3	0	0	6	569	35	0	0	0	0	0
17.2302	Machine Shop	4739	1127	345	126	2	0	473	654	244	191	153	73	120	78
17.2303	Machine Tool Operation	11312	3091	143	66	22	0	231	2860	44	100	84	71	45	54
17.2304	Metal Trades (Combined)	9465	2954	14	43	53	0	110	2844	77	29	24	54	13	54
17.2305	Sheet Metal	589	177	31	21	0	0	52	125	43	16	13	72	10	77
17.2306	Welding/Cutting	5940	2054	644	30	19	0	693	1361	641	599	531	69	273	51
17.2307	Tool & Die Making	1117	264	76	43	1	0	120	144	87	59	43	67	35	81
17.2602	Cosmetology	2027	814	158	45	0	735	938	-124	1374	63	45	64	34	76

TABLE S, page 7

Taxonomy Number	Taxonomy Title	Current Employ.	Labor Demand	Labor Supply						Student Interest	No. Avail. for Work	Completing		Student Outcomes		
				Vocational Education	Private Bus.	Indus. Trng.	CFTA	Private Schools	Total Supply			Net Demand	Primary Interest	Number	Percent	Com-pleters
												No.	%	No.	%	
17.2700	Plastics	715	322	1	0	0	0	0	0	1	321	14	1	100	1	100
17.2800	Public Service Occupations	477	50	12	1	0	0	0	13	37	37	12	15	100	1	7
17.2801	Firefighter Training	2967	86	0	53	0	0	0	53	93	93	78	0	0	0	0
17.2810	Urban Planning Aides	115	13	0	0	0	0	0	0	13	13	12	0	0	0	0
17.2901	Bakers	1950	242	4	9	0	0	0	13	229	229	57	12	64	6	67
17.2902	Cook/Chef	2085	585	60	83	24	0	0	167	418	418	291	87	67	37	52
17.2903	Meat Cutters	2257	305	26	12	2	0	0	40	265	265	126	51	46	26	57
17.2904	Waiter/Waitress	1143	813	37	12	0	0	0	49	764	764	278	39	100	28	51
17.3100	Small Engine Repairers	519	204	92	26	0	0	0	118	86	86	314	66	80	33	38
17.3300	Textile Prod. & Fabrication	3191	1729	2	2	0	0	0	4	1725	1725	17	8	78	2	29
17.3400	Leather Working	178	40	2	0	0	0	0	2	38	38	46	0	0	0	0
17.3500	Upholstering	570	161	2	6	6	0	0	14	147	147	18	3	100	2	40
17.3600	Woodworking Occupations	1428	395	21	13	0	0	0	34	361	361	242	34	92	25	74
17.6001	Fluid Power Occupations	160	27	0	0	0	0	0	0	27	27	14	0	0	0	0
17.7001	Industrial Truck Operators	3813	933	0	16	0	0	0	16	917	917	69	0	0	0	0
17.7002	Truck Driving	15907	5778	307	135	0	0	0	442	5336	5336	1260	48	100	34	45
17.7100	Misc. Repair Occupations	99	34	0	0	0	0	0	0	34	34	14	0	0	0	0
17.7300	Manufacturing Inspection	2482	566	0	2	0	0	0	2	564	564	10	0	0	0	0
	TOTAL TRADE & INDUSTRIAL	147682	41868	6086	1438	217	745	8486	33382	17067	3998	3443	79	2061	60	2261
	GRAND TOTALS	522313	102561	21024	4363	363	1693	27443	75118	59802	14829	13180	74	7714	59	8656



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