

# Education in Photogrammetry

## A survey of its availability in the United States and Canada.

THE COMPLETE LACK of any readily available listing or central source of information regarding institutions in the United States and Canada offering instruction in the field of photogrammetry has for some time been of concern to many people involved in education. They have, except for personal contracts, been only vaguely aware of offer-

as recognized by the Society of American Foresters. To these were added those schools of Geography, Geology, and other disciplines that were identifiable by individual affiliations noted in the membership roster of the American Society of Photogrammetry. This compilation resulted in a total of 295 schools, colleges, institutes, or departments which po-

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*ABSTRACT: During the past several years a variety of professions and academic disciplines have come to appreciate the importance and applicability of photogrammetric techniques to their specialized programs. Consequently, there has been a gradual but significant growth in the demand for education in photogrammetry as applied to these specialized areas.*

*However, pertinent information for the prospective students, the educator, or the potential employer regarding the opportunities for or the levels of collegiate instruction has not been readily accessible.*

*This study is an attempt to establish a foundational listing of these educational opportunities. It is thoroughly recognized that the listings contained herein may be incomplete or may be lacking in some desirable element, but it is proposed to provide a basis for more complete analysis. The author is hopeful that the Education Committee of A.S.P. or some interested individual will periodically revise and refine the information contained for the benefit of the profession as a whole.*

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ings at institutions other than their own and have, therefore, been hampered in their ability to advise interested students or adequately answer specific questions relating to the variety of educational opportunities at the undergraduate or graduate level either within or outside their own geographical area.

This study was undertaken in an attempt to establish a foundation for a complete and comprehensive index of photogrammetric educational opportunities in the United States and Canada.

RECOGNIZING THAT photogrammetry is employed as a tool in a variety of professional endeavors, an attempt was made to include several educational disciplines in the study. A listing of Engineering Colleges and Technical Institutes as compiled by the American Society of Engineering Education was supplemented by a list of the Forestry Schools

tentially could have a professional interest in the subject area.

Each unit was then assigned a five-digit identification number. The first two digits (01 to 50) were used to indicate the state or the Canadian province (51 to 60) arranged in alphabetical order within each country. The third and fourth digits were assigned arbitrarily for bookkeeping purposes only. The fifth digit identified the discipline as: 1, Engineering; 2, Forestry; 3, Geology; 4, Geography; and 5, Schools or Departments not clearly included in one of the other four categories, usually by reason of a unique title or designation.

A QUESTIONNAIRE was sent to the listed units requesting information relative to: the level and the extent of photogrammetric programs presented; supporting courses offered or available on campus; photogrammetric

TABLE 1. QUESTIONNAIRE DISTRIBUTION AND RETURNS

	Questionnaires						Of Total Returns (220)			
	Sent		Returns		No Return		No Photo.		Photo.	
	No.	%	No.	%	No.	%	No.	%	No.	%
<i>By Country</i>										
U. S.	271	92.0	199	67.5	72	24.5	68	31	131	59
Canada	24	8.2	21	7.1	3	1.1	3	1	18	8
Total	295	100.0	220	74.6	75	25.4	71	32	149	68
<i>By Discipline</i>										
Engr.	162	55.0	128	43.4	34	11.5	51	23	77	35
For.	51	17.0	41	14.0	10	3.0	2	1	39	18
Geol.	22	7.5	10	3.4	12	4.1	2	1	8	4
Geog.	25	8.5	20	6.8	5	1.7	5	2	15	7
Other	35	12.0	21	7.0	14	5.0	11	5	10	4
Total	295	100.0	220	74.6	75	25.4	71	32	149	68

Note: Round-off errors may cause discrepancies in percent totals.

instrumentation available for instruction; involvement in photogrammetric research; and the availability of financial assistance for qualified graduate students. The response to this questionnaire was most gratifying as nearly 75 percent were completed and returned.

Table 1 indicates by country and academic discipline the number and percentage of questionnaires sent and those returned. Also, of those returned (220), the table gives the

number and percent that indicated no photogrammetry was taught at that unit, and finally by country and discipline, the number and percent indicating the presentation of photogrammetry in some form. This last category of 149 units provides the basis of the name and address listing of Appendix 1.

In the preparation of the various tables included in this study, a number of abbreviations have been employed in order to keep the information in as compact a form as pos-

TABLE 2. ABBREVIATIONS USED IN TABULATIONS

Agri.	Agriculture	Ident.	Identification
Appld.	Applied	Inst.	Institute
Arch.	Architecture	Interp.	Interpretation (Photo)
Carto.	Cartography	Mech.	Mechanical
C. E.	Civil Engineering	Mgmt.	Management
Coll.	College	Nat.	Natural
Comm.	Community	Photo.	Photogrammetry
Comput.	Computer	Phys.	Physical
Deg.	Degree (Academic)	Prog.	Program
Dept.	Department of—	R. Sense.	Remote Sensing
Div.	Division of—	Res.	Resources
Engr.	Engineering	Sch.	School
Fac.	Faculty of—	Sci.	Science
Fin.	Financial	St.	State
For.	Forestry	Stat.	Statistics
Geod.	Geodesy	Surv.	Surveying
Geog.	Geography	Tech.	Technology
Geol.	Geology	U-Grad.	Undergraduate
Geophys.	Geophysics	Univ.	University
Grad.	Graduate	Wlfe.	Wildlife

TABLE 3. REGIONAL COMPOSITION

Region	States or Provinces
1. <i>Northeastern</i>	Conn., Me., Mass., N. H., N. J., N. Y., Pa., R. I., and Vt.
2. <i>Southern</i>	Ala., Ark., Del., Fla., Ga., Ky., La., Md., Miss., N. C., S. C., Tenn., Va., and W. Va.
3. <i>Midwestern</i>	Ill., Ind., Iowa, Kan., Mich., Minn., Mo., Neb., N. D., Ohio, S. D., and Wisc.
4. <i>Southwestern</i>	Ariz., N. M., Okla., and Tex.
5. <i>Mountain</i>	Colo., Ida., Mont., Nev., Utah, and Wyo.
6. <i>Pacific</i>	Alaska, Cal., Hawaii, Ore., and Wash.
7. <i>Canadian</i>	All ten provinces

sible. Although many are obvious in their meaning, the listing of Table 2 is included to avoid misinterpretation.

IN AN EFFORT to determine if these educational opportunities in photogrammetry were concentrated in any geographical pattern, the 149 affirmative responses to the questionnaire were grouped into six regional areas of the United States with the Canadian responses comprising a seventh region. The composition of the regions of the United States was arbitrarily made to conform to a regional delineation along state boundaries as devised by Rand-McNally. The states or provinces included in the seven regions are listed alphabetically in Table 3. Within this regional delineation, the affirmative responses were tabulated by disciplines as shown in Table 4.

Appendix 2, keyed to Appendix 1 by identification number, indicates the level of academic offerings, supporting subject areas, and instructional instrumentation available at each institution. Also indicated in this tabulation is an expression of active involvement in photogrammetric research, the availability of financial assistance for qualified graduate students, and finally explanatory notes or comments regarding special emphasis or conditions.

In that portion of Appendix 2 indicating instrumentation available for instruction, the categories designated by letter headings of columns are defined as follows:

- A—Primarily the more simple interpretation instruments as: Stereoscope, parallax bar, sketch master, micro rule, etc.
- B—Plotters employing primarily paper prints, as: Stereotope, multiscope, K.E.K., radial line, slotted arm templates, etc.
- C—Projection plotters, as: Multiplex, Kelsh, Balplex, Photomapper, etc.
- D—Optical or Mechanical plotters as: A-7, B-8, AP/C, C-8, PG2, etc.
- E—Precision coordinate measuring instruments, as: Mono- or Stereocomparator, etc.
- F—Aerial camera, enlarger, rectifier, processing facilities, etc.
- G—Instrumentation for recording or analyzing data from other than visible portion of electro-magnetic spectrum.

Note: Where surveying or geodesy are indicated as supporting areas of instruction, instrumentation pertinent to the subject is also indicated.

A summary of the reported programs by regions as they are listed in Appendix 2 and presented in Table 5 is of interest in visualizing the distribution of various levels of instruction in conjunction with the number of responses from that region.

IN CONSIDERING the totals in Table 5, attention must be drawn to the fact that some

TABLE 4. AFFIRMATIVE RESPONSES BY REGION AND DISCIPLINE

Region	Engr.	For.	Geol.	Geog.	Other	Total
1. (NE)	14	8	1	0	0	23
2. (S)	14	12	2	5	0	33
3. (MW)	14	7	2	5	1	29
4. (SW)	7	3	1	1	4	16
5. (Mt)	9	3	0	1	0	13
6. (Pac)	10	5	1	1	0	17
Total U.S.	68	38	7	13	5	131
7. (Can)	9	1	1	2	5	18
Total	77	39	8	15	10	149

TABLE 5. PROGRAMS BY REGIONS

Region	Responses	Grad. Deg.	U-Grad. Deg.	Support Course(s)	Portion Course	Tech.
1) NE	23	2	3	13	11	2
2) S	33	0	0	24	9	1
3) MW	29	7	5	17	14	1
4) SW	16	1	0	9	8	1
5) MT	13	1	11	2	0	0
6) Pac	17	2	2	15	1	2
7) Canada	18	3	3	11	5	5
Totals	149	16	24	91	48	12

of the Graduate Degree programs reported are not formally organized but are one or two *Special Problem* courses and, therefore, they encompass a wide variety of individual investigations as student or faculty interest may appear. This type of presentation casts some doubt on the interpretation of the *Program* designation.

To a lesser extent, a similar question may be proposed relative to a few units indicating an Undergraduate *Degree Program* where the entire presentation of the subject of photogrammetry is encompassed in one introductory course plus one course entitled Photo-interpretation.

It is also interesting to note (comments column) the growing special emphasis in Remote Sensing especially among the Forestry, Geology, and Geography disciplines. This emphasis is apparently a response to the recent public concern regarding environmental problems.

Cross referencing of identification numbers (also comments column) indicates a cooperative effort between two disciplines within the same university. This interchange may be in the form of courses offered or instrumentation employed by both participants to avoid duplication of effort or equipment.

ALTHOUGH THE questionnaire provided space for the entry of approximate student enrollment at each program level, a number of returns failed to include this information. A partial total, however, indicates that during the 1969-70 academic year a minimum of 164 students were enrolled in graduate degree programs and 188 in undergraduate degree programs. Over 3,000 students were reported to be registered in one or more photogrammetry or photo-interpretation course in support of other professional degrees; and about 1,700 more were being introduced to the

subject as a portion of some supporting course as surveying, cartography, or forest mensuration. Technician or Technologist Programs, generally of a two-year duration, reported in excess of 200 students in training although the majority of these were reported by Canadian institutions.

These enrollment figures, although admittedly incomplete, seem to call attention to the lack of technician type training in the United States educational structure. If readily available, this type of instruction could relieve the burden of *in-house* training by employers and provide an opportunity for capable young personnel who cannot afford or do not wish to pursue a degree to improve their employment potential.

FINANCIAL SUPPORT for photogrammetric research was indicated by 52 of the responding units. This support was reported to be provided in a variety of percentages by Federal Governments (44 instances), States or Provinces (31 instances), Industry (9 instances), and by local College Budget (33 instances).

In the item of financial aid for qualified graduate students, 46 units reported the availability of approximately 180 fellowships, scholarships, teaching or research assistantships on a yearly basis.

Additional observations or comments will be omitted here as it is assumed that each reader will extrapolate from the given tables comparisons, trends, or opinions in the national, regional, or disciplinary categories that are of specific interest.

IN CONCLUDING this study, the author expresses his sincere appreciation for the cooperation given by the over 200 individuals who completed and returned the basic questionnaire. Also special acknowledgement is made

to the many faculty members of nearly 40 schools visited in connection with the study during the spring of 1970 for their time, helpful comments, and warm welcome to their respective campuses.

APPENDIX 1. INSTITUTIONS INDICATING PHOTOGRAMMETRY AVAILABLE  
LISTED BY REGION AND DISCIPLINE

**Northeastern Region**

*Ident.*

*No. Colleges, Schools or Departments of Engineering*

- 07021 1 Univ. Connecticut, Sch. Engr. Dept. C. E., Storrs, Conn. 06268  
 21031 1 Univ. Massachusetts, Sch. Engr., Dept. C. E., Amherst, Mass. 01002  
 21071 1 Northeastern Univ., Coll. Engr. (Lincoln Coll.), Boston, Mass. 02115  
 21081 1 Tufts Univ., Dept. C. E., Medford, Mass. 02155  
 29021 1 Univ. New Hampshire, Coll. Tech., Dept. C. E., Durham, N. H. 03824  
 30021 1 Newark Coll. Engr., Newark, N. J. 07012  
 32041 1 Cornell Univ., Sch. C. E., Ithaca, N. Y. 14850  
 32051 1 Manhattan Coll., Dept. C. E., Bronx, N. Y., 10471  
 32061 1 City Coll. of City Univ. New York, Dept. C. E., New York, N. Y. 10031  
 38051 1 Pennsylvania St. Univ., Dept. C. E., University Park, Pa. 16802  
 38091 1 Univ. Pittsburgh, Dept. C. E., Pittsburgh, Pa. 15213  
 38111 1 Lafayette Coll., Dept. C. E., Easton, Pa. 18042  
 38121 1 Williamsport Area Comm. Coll., Dept. C. E. Tech., Williamsport, Pa. 17701  
 45021 1 Univ. Vermont, Coll. Tech., Dept. C. E., Burlington, Vt. 05401

*Colleges, Schools or Departments of Forestry, Resources or Agriculture*

- 07032 1 Univ. Connecticut, Dept. For. & Wlfe. Mgmt., Storrs, Conn. 06268  
 19022 1 Univ. Maine, Sch. for Resources, Orono, Me. 04473  
 21042 1 Univ. Massachusetts, Dept. For. Wlfe. Mgmt., Amherst, Mass. 01003  
 29032 1 Univ. New Hampshire, Dept. For. Resources, Durham, N. H. 03824  
 30062 1 Rutgers Univ., Coll. Agri. & Environmental Sci., New Brunswick, N. J. 08900  
 32162 1 St. Univ. New York, Coll. For., Dept. For. Mgmt., Syracuse, N. Y. 13210  
 38062 1 Pennsylvania St. Univ., Sch. For. Res., University Park, Pa. 16802  
 45032 1 Univ. Vermont, Dept. For., Burlington, Vt. 05401

*Colleges, Schools or Departments of Geology*

- 32213 1 New York State Univ. Cortland, Dept. Geol., Cortland, N. Y. 13045

**Southern Region**

*Colleges, Schools or Departments of Engineering*

- 01011 1 Univ. Alabama, Coll. Engr., Dept. C. E., University, Ala. 35486  
 01031 1 Auburn Univ., Sch. Engr., Dept. C. E., Auburn, Ala. 36830  
 09031 1 Univ. Miami, Sch. Engr., Coral Gables, Fla. 33124  
 10011 1 Georgia Inst. Tech., Sch. Engr., Atlanta, Ga. 30332  
 17011 1 Univ. Kentucky, Coll. Engr., Dept. C. E., Lexington, Ky. 40506  
 18011 1 Louisiana Polytech. Inst., Sch. Engr., Dept. C. E. & Geod., Ruston, Ala. 71270  
 18031 1 Louisiana St. Univ., Coll. Engr., Dept. C. E., Baton Rouge, La. 70803  
 20051 1 Howard Univ. Sch. Engr. & Arch., Washington, D. C. 20001  
 40011 1 Clemson Univ., Dept. C. E., Clemson, S. C. 29631  
 40041 1 The Citadel, Charleston, S. C. 29409  
 42011 1 Tennessee Tech. Univ., Dept. C. E., Cookeville, Tenn. 38501  
 42021 1 Univ. Tennessee, Dept. C. E., Knoxville, Tenn. 37901  
 46051 1 Virginia Military Inst., Dept. C. E., Lexington, Va. 24450  
 48021 1 West Virginia Univ., Coll. Engr., Dept. C. E., Morgantown, W. Va. 26506

*Colleges, Schools or Departments of Forestry, Resources or Agriculture*

- 01022 1 Auburn Univ., Dept. For., Auburn, Ala. 36830  
 04022 1 Arkansas Agri. & Mech. Coll., Dept. For., College Hts., Ark. 71655

## APPENDIX 1—(Continued)

*Ident.  
No.*

- 09022 1 Univ. Florida, Sch. For., Gainesville, Fla. 32603  
 09042 1 Lake City Ranger Sch., Lake City, Fla. 32055  
 18062 1 McNeese St. Coll., Dept. Agri. & For., Lake Charles, La. 70601  
 24022 1 Mississippi St. Univ., Sch. Nat. Resources, State College, Miss. 39762  
 33022 1 Duke Univ., Sch. For., Durham, N. C. 27706  
 33042 1 North Carolina St. Univ., Sch. For. Res., Raleigh, N. C. 27607  
 40022 1 Clemson Univ., Dept. For., Clemson, S. C. 29631  
 42062 1 Univ. of the South, Dept. For., Sewanee, Tenn. 37375  
 46032 1 Virginia Polytech. Inst., Div. For. & Wliffe., Blacksburg, Va. 24061  
 48012 1 West Virginia Univ., Div. For., Morgantown, W. Va. 26506

*Colleges, Schools or Departments of Geology*

- 09053 1 Florida St. Univ., Dept. Geol., Tallahassee, Fla. 32306  
 18043 1 Louisiana St. Univ., Sch. Geol. & Anthro., Baton Rouge, La. 70803

*Colleges, Schools or Departments of Geography*

- 09064 1 Florida Atlantic Univ., Dept. Geog., Boca Raton, Fla. 33432  
 10044 1 Univ. Georgia, Dept. Geog., Athens, Ga. 30601  
 24044 1 Univ. Southern Mississippi, Dept. Geog., Hattiesburg, Miss. 39401  
 33054 1 Univ. North Carolina (Grad Sch.), Dept. Geog., Chapel Hill, N. C. 27514  
 42074 1 East Tennessee St. Univ., Dept. Geog., Johnson City, Tenn. 37601

**Midwestern Region**

*Colleges, Schools or Departments of Engineering*

- 13021 1 Illinois Inst. Tech., Coll. Engr. & Phys. Sci., Chicago, Ill. 60616  
 13031 1 Univ. Illinois, Dept. C. E., Urbana, Ill. 61801  
 13071 1 Northwestern Univ., The Tech. Inst., Evanston, Ill. 60201  
 14031 1 Purdue Univ., Dept. C. E., Lafayette, Ind. 47907  
 15011 1 Iowa St. Univ., Coll. Engr. Dept. C. E., Ames, Iowa 50010  
 16011 1 Kansas St. Univ., Dept. C. E., Manhattan, Kan. 66502  
 22021 1 Michigan St. Univ., Coll. Engr., Dept. C. E., East Lansing, Mich. 48104  
 23011 1 Univ. Minnesota, Dept. C. E., Minneapolis, Minn. 55455  
 25041 1 Saint Louis Univ., Sch. Engr. & Earth Sci., St. Louis, Mo. 63156  
 34021 1 Univ. North Dakota, Coll. Engr., Dept. C. E., Grand Forks, N. D. 58201  
 35041 1 Univ. Cincinnati, Coll. Engr., Dept. C. E., Cincinnati, Ohio 45221  
 35121 1 Youngstown St. Univ., Sch. Engr., Dept. C. E., Youngstown, Ohio 44503  
 41021 1 South Dakota St. Univ., Coll. Engr., Dept. C. E., Brookings, S. D. 57006  
 49021 1 Univ. Wisconsin, Coll. Engr., Dept. C. E., Madison, Wisc. 53706

*Colleges, Schools or Departments of Forestry, Resources or Agriculture*

- 13092 1 Southern Illinois Univ., Dept. For., Carbondale, Ill. 62901  
 15032 1 Iowa St. Univ., Dept. For., Ames, Iowa 50010  
 22062 1 Michigan Technological Univ., Dept. For., Houghton, Mich. 49931  
 22092 1 Univ. Michigan, Dept. For., Ann Arbor, Mich. 48104  
 23032 1 Univ. Minnesota, Sch. For., St. Paul, Minn. 55101  
 25022 1 Univ. Missouri, Sch. For., Columbia, Mo. 65201  
 49062 1 Univ. Wisconsin, Dept. For., Madison, Wisc. 53706

*Colleges, Schools or Departments of Geology*

- 13123 1 Augustana Coll., Dept. Geol., Rock Island, Ill. 61201  
 35053 1 Univ. Cincinnati, Dept. Geol., Cincinnati, Ohio 45221

*Colleges, Schools or Departments of Geography*

- 13114 1 Northern Illinois Univ., Dept. Geog., De Kalb, Ill. 60115

## APPENDIX 1—(Continued)

*Ident.  
No.*

- 23024 1 Univ. Minnesota, Dept. Geog., Minneapolis, Minn. 55455  
 35134 1 Kent St. Univ., Dept. Geog., Kent, Ohio 44240  
 49044 1 Univ. Wisconsin, Dept. Geog., Madison, Wisc. 53706  
 49054 1 Wisconsin St. Univ., Dept. Geog., Whitewater, Wisc. 53190

*Colleges, Schools or Departments of Unique Title*

- 35095 1 Ohio St. Univ., Dept. Geodetic Sci., Columbus, Ohio 43210

**Southwestern Region***Colleges, Schools or Departments of Engineering*

- 03021 1 Univ. Arizona, Dept. Mining & Geologic. Engr., Tucson, Ariz. 85721  
 31011 1 New Mexico St. Univ., Coll. Engr., Dept. C. E., Las Cruces, N. M. 88001  
 36011 1 Oklahoma St. Univ., Sch. C. E., Stillwater, Okla. 74074  
 36061 1 Eastern Oklahoma St. Coll., Dept. Engr., Wilburton, Okla. 74578  
 43031 1 Rice Univ., Dept. C. E., Houston, Tex. 77001  
 43061 1 Texas A. & M. Univ., Dept. C. E., College Station, Tex. 77843  
 43081 1 Univ. Texas at Arlington, Dept. C. E., Arlington, Tex. 76010

*Colleges, Schools or Departments of Forestry, Resources or Agriculture*

- 03052 1 Northern Arizona Univ., Sch. For., Flagstaff, Ariz. 86001  
 36022 1 Oklahoma St. Univ., Dept. For., Stillwater, Okla. 74074  
 43112 1 Stephen F. Austin St. Univ., Sch. For., Nacogdoches, Tex. 75961

*Colleges, Schools or Departments of Geology*

- 36043 1 Univ. Oklahoma, Sch. Geol. & Geophys., Norman, Okla. 73069

*Colleges, Schools or Departments of Geography*

- 43124 1 Southwest Texas St. Univ., Dept. Geog., San Marcos, Tex. 78666

*Schools or Institutes of Technology*

- 31035 1 Eastern New Mexico Univ., Tech. Inst., Portales, N. M. 88130  
 43025 1 Lamar St. Coll. Tech., Dept. C. E., Beaumont, Tex. 77705  
 43045 1 Southern Methodist Univ., Dept. C. E., Inst. Tech., Dallas, Tex. 75222

*Colleges, Schools or Departments of Unique Title*

- 03035 1 Univ. Arizona, Dept. Watershed Mgmt., Tucson, Ariz. 85721

**Mountain Region***Colleges, Schools or Departments of Engineering*

- 06011 1 Colorado Sch. Mines, Dept. Basic Engr., Golden, Col. 80401  
 06021 1 Colorado St. Univ., Coll. Engr., Fort Collins, Col. 80521  
 06041 1 Univ. Colorado, Dept. C. E., Boulder, Colo. 80302  
 06071 1 U.S.A.F. Academy, Dept. C. E., Colorado Springs, Col. 80840  
 12011 1 Univ. Idaho, Dept. C. E., Moscow, Ida. 83843  
 44011 1 Brigham Young Univ., Coll. Phys. & Engr. Sci., Provo, Utah 84601  
 44021 1 Utah State Univ., Coll. Engr., Logan, Utah 84321  
 44041 1 Univ. Utah, Dept. C. E., Salt Lake City, Utah 84112  
 50011 1 Univ. Wyoming, Coll. Engr. Dept. C. E., Laramie, Wyo. 82070

*Colleges, Schools or Departments of Forestry, Resources or Agriculture*

- 06032 1 Colorado St. Univ., Coll. For. & Nat. Res., Fort Collins, Col. 80521  
 12022 1 Univ. Idaho, Coll. For. & Wlfe. & Range Sci., Moscow, Ida. 83843  
 26032 1 Univ. Montana, Sch. For., Missoula, Mont. 59801

*Colleges, Schools or Departments of Geography*

- 06084 1 U.S.A.F. Academy, Dept. Geog., Colorado Springs, Col. 80840

## APPENDIX 1—(Continued)

Ident  
No.**Pacific Region***Colleges, Schools or Departments of Engineering*

- 02011 1 Univ. Alaska, Dept. C. E., College, Alaska 99701  
 05021 1 California St. Coll., Long Beach, Dept. C. E., Long Beach, Calif. 90801  
 05041 1 Univ. California Berkeley, Coll. Engr., Berkeley, Calif. 94720  
 05111 1 Sacramento St. Coll., Sch. Engr., Sacramento, Calif. 95810  
 05121 1 San Diego St. Coll., Sch. Engr., San Diego, Calif. 92115  
 05161 1 Chico St. Coll., Dept. C. E., Chico, Calif. 95927  
 05191 1 City Coll. San Francisco, Dept. Engr., San Francisco, Calif. 94112  
 37011 1 Oregon St. Univ., Sch. Engr., Dept. C. E., Corvallis, Ore. 97331  
 37031 1 Blue Mountain Comm. Coll., Dept. C. E. Tech., Pendleton, Ore. 97801  
 47031 1 Univ. Washington, Dept. C. E., Seattle, Wash. 98015

*Colleges, Schools or Departments of Forestry, Resources or Agriculture*

- 05052 1 Univ. California Berkeley, Sch. For., Berkeley, Calif. 94720  
 05152 1 Humbolt St. Coll., Dept. For., Arcata, Calif. 95521  
 37022 1 Oregon St. Univ., Sch. For., Dept. For. Mgmt., Corvallis, Ore. 97331  
 47022 1 Washington St. Univ., Dept. For. & Range Mgmt., Pullman, Wash. 99163  
 47042 1 Univ. Washington, Coll. For. Res., Seattle, Wash. 98105

*Colleges, Schools or Departments of Geology*

- 05213 1 Stanford Univ., Dept. Geol., Stanford, Calif. 94305

*Colleges, Schools or Departments of Geography*

- 37044 1 Univ. Oregon, Dept. Geog., Eugene, Ore. 97403

**Canada***Colleges, Schools or Departments of Engineering*

- 51011 1 Univ. Alberta, Fac. Engr., Dept. C. E., Edmonton 7, Alberta, Can.  
 52011 1 Univ. British Columbia, Dept. C. E., Vancouver 8, B. C., Can.  
 54011 1 Univ. New Brunswick, Dept. Surv. Engr., Fredericton, N. B., Can.  
 57051 1 Univ. Toronto, Fac. Appld. Sci., Dept. C. E., Toronto 5, Ont., Can.  
 57061 1 Univ. Windsor, Fac. Appld. Sci., Dept. C. E., Windsor, Ont., Can.  
 59011 1 Ecole Polytechnique, Dept. C. E., Montreal 250, Queb., Can.  
 59021 1 McGill Univ., Fac. Engr., Dept. C. E. & Appld. Sci., Montreal, Queb., Can.  
 60011 1 Univ. Saskatchewan, Dept. C. E., Saskatoon, Sask., Can.

*Colleges, Schools or Departments of Forestry, Resources or Agriculture*

- 52022 1 Univ. British Columbia, Dept. For., Vancouver, B. C., Can.

*Colleges, Schools or Departments of Geography*

- 51034 1 Univ. Alberta, Dept. Geog., Edmonton 7, Alberta, Can.  
 57034 1 McMaster Univ., Dept. Geog., Hamilton, Ont., Can.  
 57044 1 Queens Univ., Fac. Appld. Sci., Dept. Geog., Kingston, Ont., Can.

*Schools or Institutes of Technology*

- 51045 1 Northern Alberta Inst. Tech., Edmonton., Alberta, Can.  
 55015 1 Coll. Trades & Tech., St. Johns, Newfoundland, Can.  
 57015 1 Univ. Guelph, Sch. Agri. Engr., Guelph, Ont., Can.  
 57095 1 Humber Coll., Appld. Arts & Tech., Rexdale, Ont., Can.  
 57105 1 Ryerson Polytech. Inst., Dept. Civil Tech., Toronto, Ont., Can.

*Colleges, Schools or Departments of Unique Title*

- 59045 1 Laval Univ., Dept. Photogrammetry, Quebec 10, Queb., Can.



APPENDIX 2. PROGRAMS, INSTRUMENTATION, RESEARCH, FINANCIAL ASSISTANCE

Ident. No.	Programs				Supporting Courses						Photogrammetry Instructional Instruments							Rech. Prog.	Fin. Assist.	Areas of Special Emphasis or Explanatory Comment
	Grad. Deg.	U. Grad. Course	Part. Crs.	Tech.	Interp.	Surv.	Geod.	Carto.	Stat.	Comput.	See Text for Category Definitions									
											A	B	C	D	E	F	G			
<b>Northeastern Region</b>																				
07021			*		*	*				*	*	*								
21031						*				*	*	*								
21071				*			*													
21081				*																
29021				*						*										
30021		*	*																	
32041	*	*	*		*		*	*	*	*	*	*	*	*	*	*	*	Analyt Photo. & Geo. Sci.		
32051			*		*															
32061			*		*															
38051					*		*	*	*	*	*	*	*	*	*	*	*	Tech. Prog. at Wilkes Barre		
38091		*	*		*		*	*	*	*	*	*	*	*	*	*	*			
38111		*	*		*		*	*	*	*	*	*	*	*	*	*	*			
38121		*	*		*		*	*	*	*	*	*	*	*	*	*	*			
45021		*	*		*		*	*	*	*	*	*	*	*	*	*	*			
07032		*	*		*		*	*	*	*	*	*	*	*	*	*	*			
19022		*	*		*		*	*	*	*	*	*	*	*	*	*	*			
21042		*	*		*		*	*	*	*	*	*	*	*	*	*	*			
29032		*	*		*		*	*	*	*	*	*	*	*	*	*	*			
30062		*	*		*		*	*	*	*	*	*	*	*	*	*	*			
32162	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Analyt. & Inst. Photo.		
38062		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
45032	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
32213		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
<b>Southern Region</b>																				
01011		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*			
01031		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*			
09031		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*			
10011		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	Hwy. Eng. & Survey		
17011		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*			
18011		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*			
18031		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*			
20051		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*			
40011		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*			
40041		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*			
42011		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	Hwy. Topo. & Eng.		
42021		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*			
46051		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*			
48021		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*			
01022		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*			
04022		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*			
09022		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*			
09042		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Field Techniques		
18062		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	Photo. Interp.		
24022		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*			
33022		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*			
33042		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	Photo. Interp. Only		
40022		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	Interp. & Remote Sense		
42062		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*			
46032		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*			
48012		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*			
09053		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	Thermal I. R. & Radar		
18043		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	Geologic. Inter.		
09064		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	Interp.		
10044		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	Remote Sense		
24044		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	Interp.		
33054		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	1 Grad. Course		
42074		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	Carto. & Remote Sense		



