DOCUMENT RESUME

ED 124 746 CE 007 362

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TITLE Follow-Up Study of Machine Tool Technology and Building Construction Graduates. Evaluation Report.
INSTITUTION Southern Maine Vocational Technical Inst., South Portland.
REPORT NO VT-102-870
PUB DATE Aug 75
NOTE 113p.; Pages 94 and 104 will not reproduce well in microfiche; Pages 114 through 120, containing the names and addresses of the graduates studied, were removed and are not included in the pagination

EDRS PRICE MF-$0.83 HC-$6.01 Plus Postage.
DESCRIPTORS Course Evaluation; *Curriculum Evaluation; Employer Attitudes; Followup Studies; *Graduate Surveys; Participant Satisfaction; Post Secondary Education; *Program Evaluation; Questionnaires; Relevance (Education); Tables (Data); Technical Institutes; *Trade and Industrial Education; *Vocational Followup
IDENTIFIERS *Building Construction; *Machine Tool Technology

ABSTRACT

A followup study of graduates from machine tool technology and building construction programs was conducted to determine the relevancy of programs to employment needs. The survey instrument was a mailed questionnaire designed to determine employment status and history, evaluation of the program, upgrading or retraining needs, and the adequacy of specific course offerings. A random sample of graduates was selected for a followup personal interview at their place of employment. Employers were also interviewed when possible. The report details the survey results in both narrative and tabular form. Also included are free response comments. Major findings include: 87.9% of the building construction graduates and 78.2% of the machine tool technology graduates held jobs related to their training; graduates were generally satisfied with their curriculums but did offer suggestions for changes; and a majority of the respondents were interested in upgrading, retraining, and continuing education. The appendix to the report contains the cover letter, questionnaire, and curriculum evaluation check lists used in the survey. (HG).

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FOLLOW-UP STUDY
of
MACHINE TOOL TECHNOLOGY
and
BUILDING CONSTRUCTION
GRADUATES

EVALUATION REPORT
August 1975

Principal Investigators:
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I. INTRODUCTION

The Machine Tool Technology and Building Construction programs date back to the initial creation of the Maine Vocational Technical Institute. Their main purpose was to prepare young men for initial employment in trade, or occupational areas, and to provide a background that would enhance advancement potential.

The study was designed to determine the following:

1. Employment status of graduates
2. Employment sequence since graduation
3. Program evaluation as perceived by graduates and employers
4. Up-grading/retraining needs of graduates
5. Graduate profile/employer evaluation profile for programatic restructuring and development.

Basically, the results of the study should determine how well the Machine Tool Technology and Building Construction programs are succeeding in their efforts to prepare well qualified employees.

II SURVEY PROCEDURES

Two full-time investigators were employed for a two-month period to identify graduates of the Building Construction and Machine Tool Technology curriculums for the classes of 1970, 1972, and 1974.

The study was designed to include both mail and interview techniques, therefore a random sample of those graduates living within a reasonable commuting distance of the Southern Maine Vocational Technical Institute was selected for interviews.

A follow-up opinionnnaire and check list (Appendix B, C, D) was validated on selected graduates, and mailed with a cover letter (Appendix A) to each graduate identified. Those selected for interviews were contacted at their place of employment, their opinionnaire collected, and employer interviewed when possible.

Of the seventy-three Building Construction graduates who were contacted, twenty-seven (27) returned opinionnaires by mail and nineteen (19) through personal interview for a 63.01% return.

Of the fifty-three (53) Machine Tool Technology graduates who were contacted, ten (10) returned opinionnaires by mail and nineteen (19) through personal interview for a 54.72% return.

TABLE I

PROGRAM GRADUATES

	1970	1972	1974	TOTAL
BUILDING CONSTRUCTION	28	18	27	73
MACHINE TOOL TECHNOLOGY	22	16	15	53
	50	34	42	126

TABLE II

OPINIONNAIRES RETURNED
by MAIL

	1970	1972	1974	TOTAL
BUILDING CONSTRUCTION	6	8	13	27
MACHINE TOOL TECHNOLOGY	2	4	4	10
	8	12	17	37

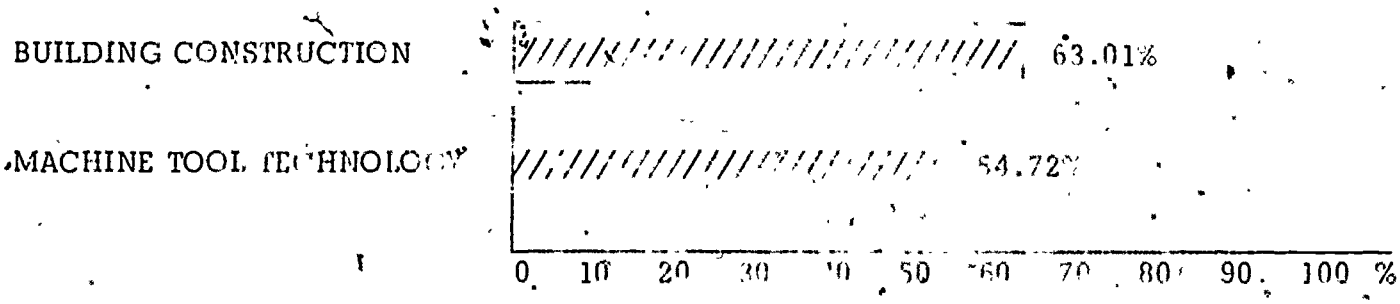
TABLE III

OPINIONNAIRES RETURNED
at INTERVIEW

	1970	1972	1974	TOTAL
BUILDING CONSTRUCTION	6	5	8	19
MACHINE TOOL TECHNOLOGY	8	5	6	19
	14	10	14	38

TABLE IV

PERCENT - OPINIONNAIRES RETURNED



III GENERAL EMPLOYMENT DATA

A majority of graduates who responded to the follow-up study were diploma graduates. A distribution, according to program and curriculum area, is shown in Table V.

TABLE V

GRADUATES BY PROGRAM

	Associate	Diploma	Total
BUILDING CONSTRUCTION	17	29	46
MACHINE TOOL TECHNOLOGY	9	20	29
	26	49	75

Tables six and seven illustrate the range of positions held by the graduates. All individuals contacted are currently employed with a majority of graduates from both curriculum areas working in the trade area, or one closely allied to it. Of the thirty-eight Machine Tool Technology graduates identified, thirty-one were employed in the trade or related areas, while forty-six out of fifty-one Building Construction graduates were also employed in the trade area for which they were trained.

Of those responding, 38.6% of the Building Construction graduates, and 65.7% of the Machine Tool Technology graduates pursued additional training or education as revealed in table seven.

TABLE VI

EMPLOYMENT STATUS OF MACHINE TOOL TECHNOLOGY GRADUATES*

Job Title	Year Graduated			Total
	1970	1972	1974	
Machinist	9	8	6	23
Foreman	1		1	2
Engineering Assistant	1			1
Mechanic			1	1
Welder		1		1
Production Control	1			1
Draftsman		1	1	2
Mail Handler			1	1
Truck Driver			1	1
Saw Mill Operator			1	1
Salesman-Insurance	1			1
Maintenance-Grower	1			1
Armed Forces		2		2

*Includes graduates who did not return opinionnaire.

TABLE VII

EMPLOYMENT STATUS OF
BUILDING CONSTRUCTION GRADUATES*

Job Title	Year Graduated			Total
	1970	1972	1974	
Carpenter	6	3	8	17
Foreman		1	1	2
Self-employed	2	4	1	7
Construction			1	1
Side Wall Mechanic			1	1
Cabinet Maker	1	1		2
Window Set-up		1		1
Building Inspector	1	1		2
Window Maker	1			1
Building Maintenance	1			1
Building Materials				
Sales	1	1	3	5
Shipper		1		1
Operations Coordinator	1			1
Estimator-Draftsman	1		2	3
Engineering Technician	1			1
Fire Fighter	1			1
Pipefitter	1			1
Armed Forces	1	1		2
Veterans Coordinator		1		1
				*51

*Includes graduates who did not return opinionnaire.

An analysis of job information and sequence of employment is shown in Table VIII. With one exception, all respondents were employed in a full-time job upon graduation. Forty-two Building Construction graduates have held one job; thirteen, two; and twenty-eight, three since their graduation from The Southern Maine Vocational Technical Institute. A high percentage - 87.9% - indicated their jobs were related to training received.

Twenty-nine Machine Tool Technology graduates have held one job; eighteen, two; and eight, three since graduation. Of the total reporting, 78.2% indicated their jobs were related to their training.

As noted, a large percentage of graduates are employed in the area for which they were trained. The following responses were received for the question:

"If you are not employed in area for which trained, please indicate why."

"There wasn't enough money when I graduated"
"Few jobs available in Machine Tool work due to government cut-back"
"I chose related area because of job demand close to home."
"Stayed with job I worked in during school-pay too good."
"Although I'm in a different job, my Southern Maine Vocational Technical Institute training helped me hold this service one."
"I'm a job hopper! At least three or four per year. After being away a long period of time, I lost interest in the field."
"No job available with same amount of pay."
"Couldn't find a job in Building Trades that would last any length of time."
"No dependable jobs available"
"I am employed in the area for which I was trained in that I must still be aware of construction and methods."
"I took emergency medical training while attending Southern Maine Vocational Technical Institute. My Building Construction training has helped in fire-fighting duties."
"I took a job in steel rather than wood construction."

ADDITIONAL TRAINING

BUILDING CONSTRUCTION

	1970	1972	1974			1972	Total
None	5	10	20			6	12
On-the-job	2	2	1	8	1	2	8
Vocational School		1	3		2		6
University-College	2	2	8		2	1	3
Apprenticeship							2
Other	2	1	1		2	1	4

BUILDING CONSTRUCTION

MACHINE TOOL TECHNOLOGY

NONE

ON-THE-JOB

VOCATIONAL SCHOOL

UNIVERSITY/COLLEGE

APPRENTICESHIP

OTHER

ADDITIONAL TRAINING BEYOND GRADUATION

BUILDING CONSTRUCTION

MACHINE TOOL TECHNOLOGY

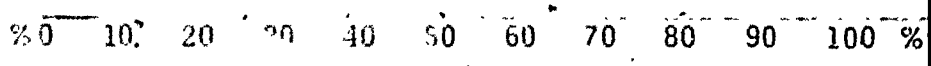


TABLE IX

SEQUENCE OF JOBS RELATED TO TRAINING

BUILDING CONSTRUCTION
GRADUATES

	1970			1972			1974			TOTALS		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
FULL-TIME	11	5	8	12	2	11	19	6	9	42	13	28
PART-TIME												
JOB-RELATED TRAINING	9	3	6	12	1	11	19	5	7	40	9	24
NOT-RELATED TRAINING	2	2	2		1			1	2	2	4	4

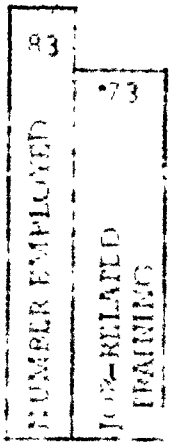
MACHINE TOOL TECHNOLOGY
GRADUATES

	1970			1972			1974			TOTALS		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
FULL-TIME	10	6	3	8	5	2	11	7	3	28	18	8
PART-TIME				1						1		
JOB-RELATED TRAINING	9	3	2	8	5	2	9	3	2	26	11	6
NOT-RELATED TRAINING	1	3	1	1			2	4	1	4	7	3

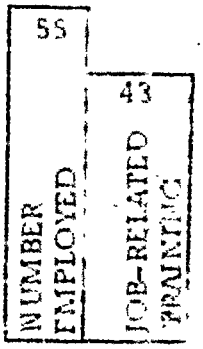
TABLE X

RELATIONSHIP - TRAINING TO JOB

BUILDING CONSTRUCTION



MACHINE TOOL TECHNOLOGY



78.2%

JOB-RELATED TRAINING

IV PROGRAM DATA

CURRICULUM

Respondents were asked to rate the curriculum in the light of their experiences on the job. Table XI indicates that most individuals rated the curriculum as very good or excellent with only a smaller percentage - 28.3 - rating the programs as adequate. Only one respondent rated the curriculum as inadequate.

TABLE XI

CURRICULUM EVALUATION

	BUILDING CONSTRUCTION				MACHINE TOOL TECHNOLOGY			
	1970	1972	1974	TOTAL	1970	1972	1974	TOTAL
EXCELLENT	3	3	2	8	3	1	3	7
VERY GOOD	4	6	12	22	7	4	4	15
ADEQUATE	5	2	3	10	1	4	2	7
DOES NOT APPLY								

FACILITIES AND EQUIPMENT

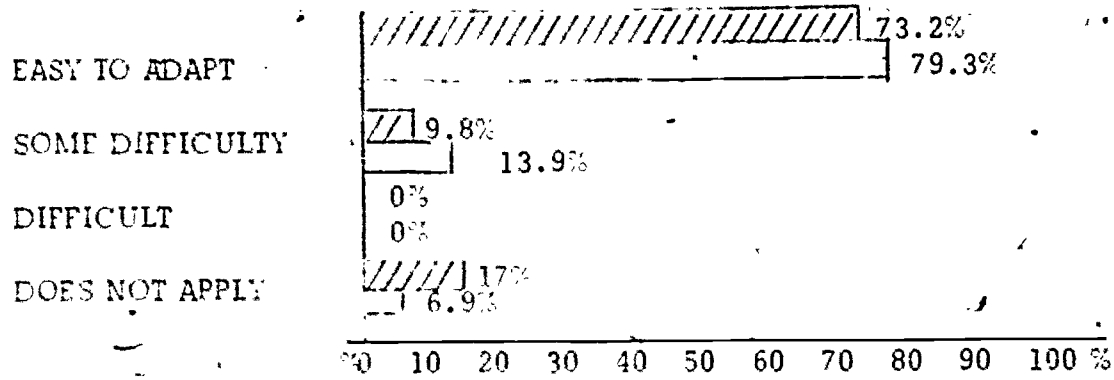
Two questions were asked related to facilities and equipment. One concerned itself with the ability of the student to adapt from school to in-plant equipment, while the second was a rating of equipment in use at Southern Maine Vocational Technical Institute. Responses to the questions are noted in Tables XII and XIII.

73.9% of the Machine Tool Technology graduates and 73.2% of those in Building Construction found it easy to adapt to industrial equipment. Small percentages had some difficulty, while there were none that found it difficult to adapt.

TABLE XII

STUDENT ADAPTABILITY TO EQUIPMENT QUESTION

Number Responses B/C	Number Responses M/T/T	QUESTION
30	23	I found it very easy to adapt to equipment on the job.
4	4	I had some difficulty adapting to equipment on the job.
0	0	I found it difficult to adapt to equipment on the job
2	2	DOES NOT APPLY

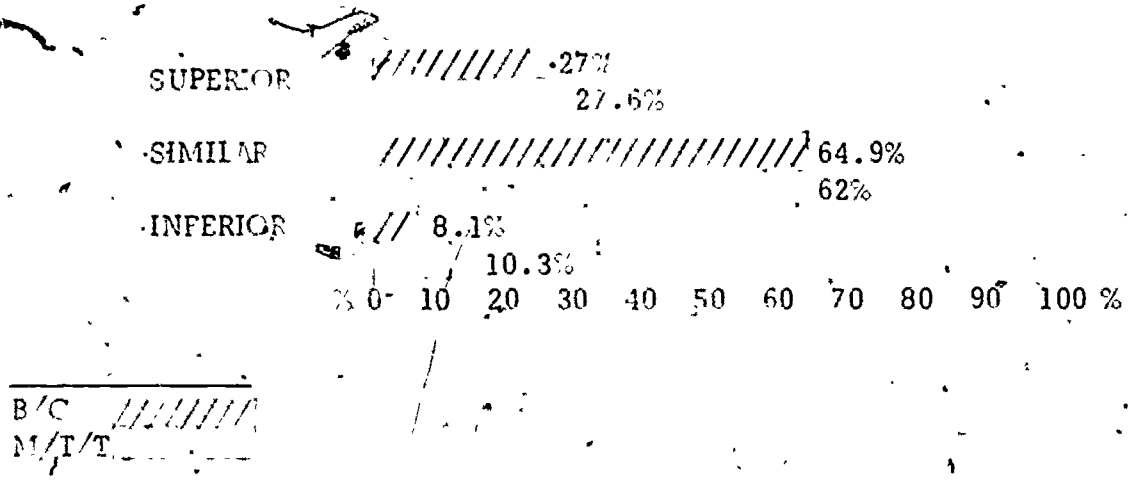


A comparison of school equipment revealed that a majority of the respondents in both Building Construction and Machine Tool Technology felt that the equipment in use at the Vocational-Technical Institute was similar to that in use on the job. A smaller percentage - 27.3% - felt equipment was superior, and 9% indicate that it was inferior to that found on the job - Table XIII reveals little difference in responses of students in either program.

TABLE XIII

COMPARISON OF SCHOOL TO INDUSTRIAL EQUIPMENT QUESTION

Number Responses		QUESTION
B/C	M/T/T	
10	8	The Vocational-Technical equipment was superior to that on the job
24	18	The Vocational-Technical equipment was similar to that on the job
3	3	The Vocational-Technical equipment was inferior to that on the job



INSTRUCTION

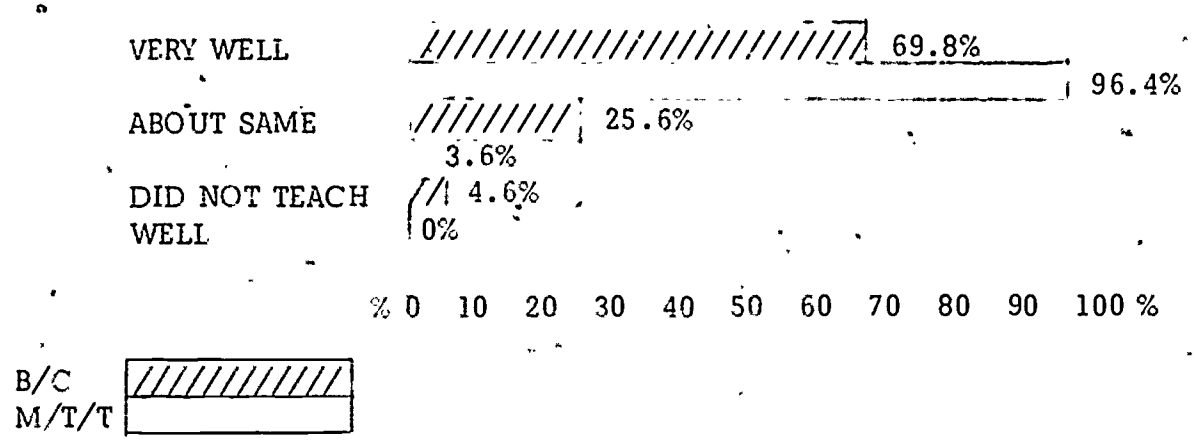
Participants responded to four questions related to instruction concerned with quality of teaching, knowledge possessed by instructors, interest expressed by instructors, and the extent to which instructors were up-to-date in their field.

Table XIV indicates student satisfaction with quality of instruction. 69.8% of the Building Construction graduates and 96.4% of those in Machine Tool Technology rated instruction as very well. Eleven respondents - 25.6% - of Building Construction graduates rated instruction as about the same, while 3.6% of Machine Tool Technology graduates responded. Only two Building Construction graduates rated instruction as poor. The table reveals greater satisfaction with instruction in Machine Tool Technology than that of the Building Construction program.

TABLE XIV

TEACHING QUALITY OF INSTRUCTORS

RESPONSE B/C	RESPONSE M/T/T	QUESTION
30	27	The instructors taught very well.
11	1	About the same as other instructors
2	0	The instructors did not teach well.

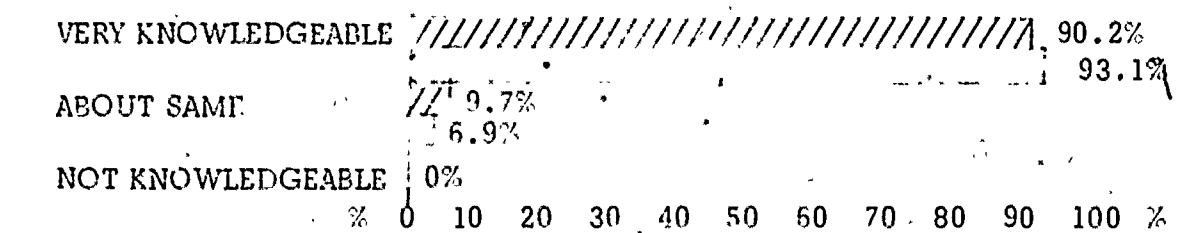


Respondents rated their instructors as very knowledgeable in their subject and occupational area. Table XV reveals that 90.3% of the Building Construction and 93.1% of the Machine Tool Technology graduates rated their instructors as very knowledgeable, while 9.7% and 6.9% respectively, rated them about the same as other instructors. No responses were made in the not knowledgeable area.

TABLE XV

KNOWLEDGE OF VOCATIONAL INSTRUCTORS

RESPONSE B/C	RESPONSE M/T/T	QUESTION
37	27	Instructors were very knowledgeable
4	2	About the same as other instructors
0	0	Instructors were not knowledgeable

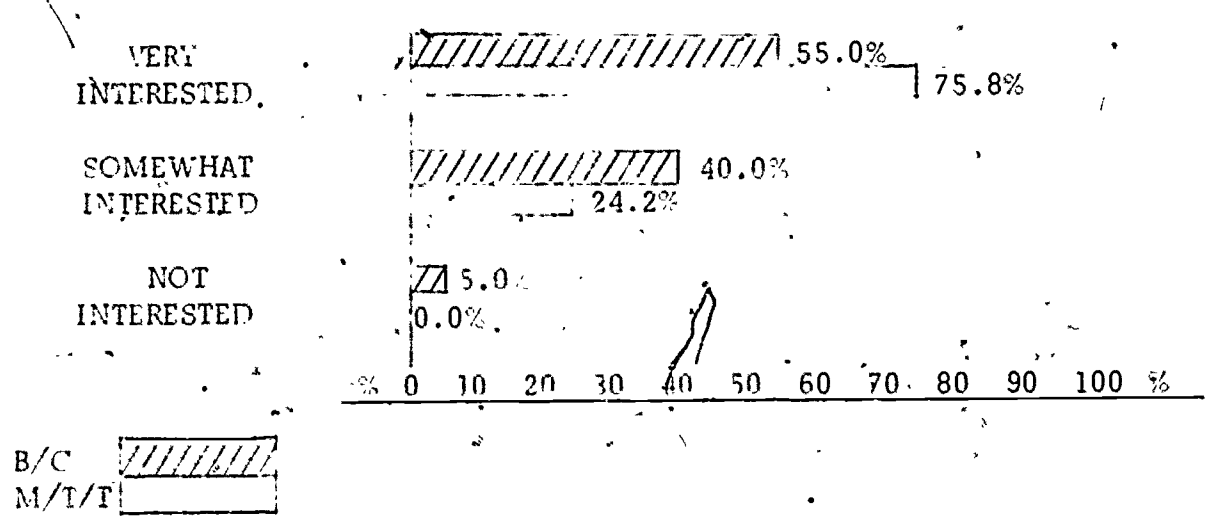


When asked to respond to the question of instructor interest in student work and progress, 55.0% of the Building Construction, and 75.8% of the Machine Tool Technology graduates indicated that instructors were very interested. Sixteen, or 40.0% of the Building Construction, and 24.2% of the Machine Tool Technology respondents felt that instructors were somewhat interested, while two Building Construction respondents felt their instructors were not interested in their progress.

TABLE XVI

INSTRUCTOR INTEREST

RESPONSE B/C	RESPONSE M/T/T	QUESTION
22	22	Instructors were very interested in my progress
16	7	Instructors were somewhat interested in my progress
2	0	Instructors were not interested in my progress

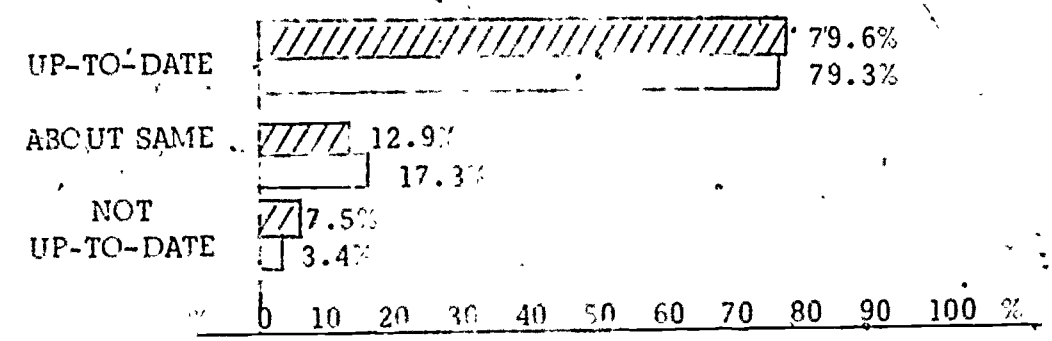


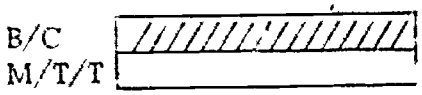
Instructors were rated as up-to-date by 79.6% of the Building Construction, and 79.3% of the Machine Tool Technology graduates. Less than 20% rated them as about the same as other instructors, while fewer than 10% indicated their instructors were not up-to-date. See Table XVII

TABLE XVII

EXTENT IN WHICH INSTRUCTORS WERE UP-TO-DATE

RESPONSE B/C	RESPONSE M/T/T	QUESTION
43	23	Instructors were up-to-date
7	5	About the same as other instructors
4	1	Instructors were not up-to-date





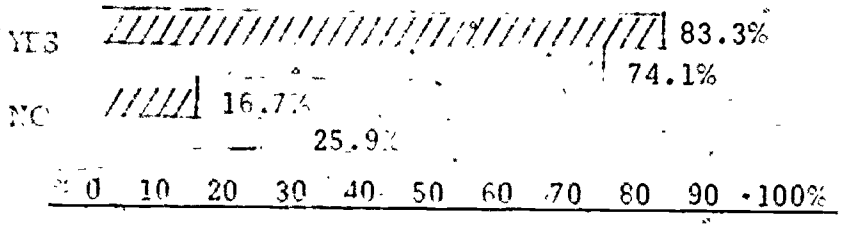
A final question under instruction was: If you could start all over again, would you choose the same vocational training program? 83.3% of Building Construction, and 74.1% of Machine Tool Technology graduates responded positively. Their responses would indicate general satisfaction with instruction and the training programs.

TABLE XVIII

CHOICE OF TRAINING PROGRAM
IF ONE STARTED OVER AGAIN

RESPONSE	
B/C	M/T/T
35	20
7	7

Yes
No



General comments related to choosing the same program were:

BUILDING CONSTRUCTION

No - "Too much competition. Building Construction instructors brain-washed us making us think we would be so valuable."

Yes - "Although the methods of instruction were only basic to the field, they provided the proper knowledge needed to develop greater outside."

No - "Now I am a Christian, before I wasn't while attending Southern Maine Vocational Technical Institute. My values of life and attitudes have changed. There is more to life than making a dollar."

Yes - "It has been very helpful at my present job."

No - "Would have chosen a program more related to wildlife and nature."

Yes - "I am very interested in the building field, but I would try to get the instructors to see my point of view, which were much better and easier."

Yes - "I felt the Building Construction course was taught very good, and the instructors were good in their field."

Yes - "I wish that they would have training on the job - not a mock-up - but I know it's almost impossible."

Yes - "I would work on a construction job for at least a year before taking the Vocational program. I feel it would give me a better understanding of the Vocational Training Program."

No - "Original intent was to be a carpenter, but I should have realized I did not have background before starting the course. The Drafting and Blueprint Reading course helped me find a most rewarding opportunity."

Yes - "The Building Construction program covers a wide range of topics to get our feet wet. I believe they have done an excellent job in preparing me for my vocation."

Yes - "Because I like the construction field where there are changes every day."

Yes - "I feel the training helped me get my present job."

Yes - "If they had a course dealing in more steel and cutting and welding; these were not in my course."

No - "Would have taken Associate degree."

Yes - "I like the construction field."

Yes - "I feel as though some classes were a waste of time. Also, some of the topics were drawn out to an unnecessary amount of time."

No - "In light of the economy, probably not, but I have something I can always use."

Yes - "But found training not adequate to field needs of communicating to other trades and trade areas."

MACHINE TOOL

No - "The opportunity in the Southern Maine area is limited in this field. Union dues are high for the amount of benefits, and job security is non-existent."

Yes - "In the type of work I'm doing, truthfully, I would like more blueprint reading and layout."

Yes - "The training I received was the very best at the time I received it."

Yes - "Unless I could work in a good apprenticeship program."

Yes - "I would do as I have recommended to others, that is to put both years in at Southern Maine Vocational-Technical Institute rather than one of the other Vocational Technical Institutes."

No - "I would get a course with more welding because of the demand in this area, and I like it better."

No - "The only reason I say no is because for all of the responsibility and education needed in this field, the hourly wages are below that of some unskilled positions."

No - "This field does not allow for much advancement."

Yes - "I don't think that the Elective courses were that good as far as pertaining to the Machine Tool Trade."

Yes - "It has done the most for me to get acquainted with millright work."

No - "Not during the present economic situation"

Yes - "and I would like to see more Numerical Control equipment and, maybe more in Tool and Cutter Sharpening."

SCHOOL AND COMMUNITY SERVICES

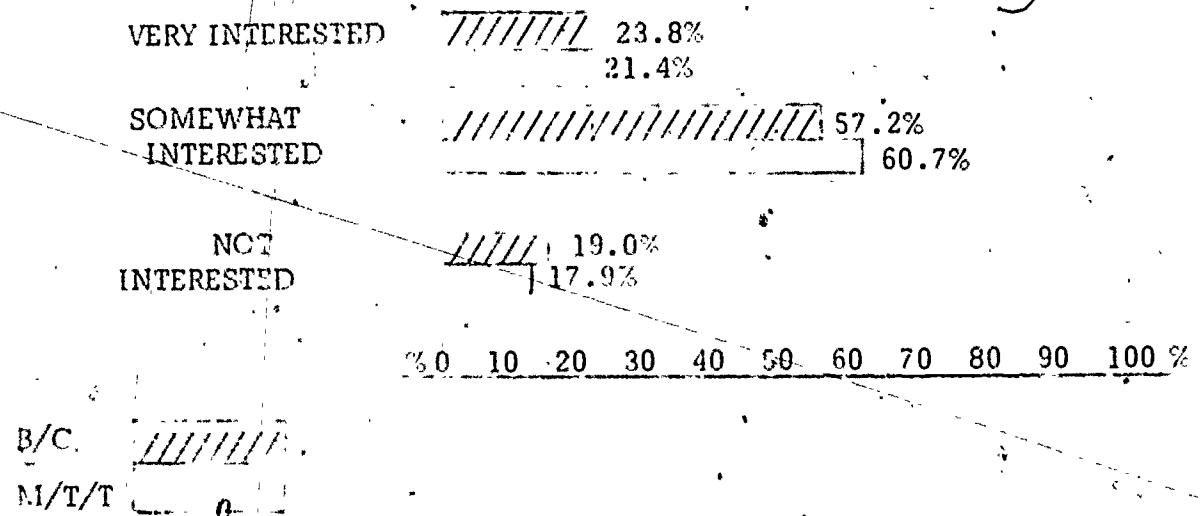
Participants responded to three questions related to school and community services. They were concerned with interest shown by instructors, assistance in obtaining a first job, and services provided by vocational instructors.

Table XIX reveals that ten, or 23.8% of the Building Construction graduates, and six, or 21.4% of the Machine Tool Technology graduates felt instructors were very interested in their work and progress after graduation. Twenty-four, or 57.2% of the Building Construction and seventeen, or 60.7% of the Machine Tool Technology graduates indicated they were somewhat interested; while eight, or 19.0% of the Building Construction, and five, or 17.9% of the Machine Tool Technology graduates indicated that instructors were not interested.

TABLE XIX

INSTRUCTOR INTEREST IN GRADUATES

RESPONSE B/C	RESPONSE M/T/T	QUESTION
10	6	Very interested in progress
24	17	Somewhat interested in progress
8	5	Not interested in progress



In response to the question "Who was the greatest help to you in securing your first job?" Respondents from both programs indicated a pattern of uniformity as revealed in Table XX. Assistance was uniformly distributed amongst the instructor, relative and friends and other sources with little assistance from the State and private employment agencies.

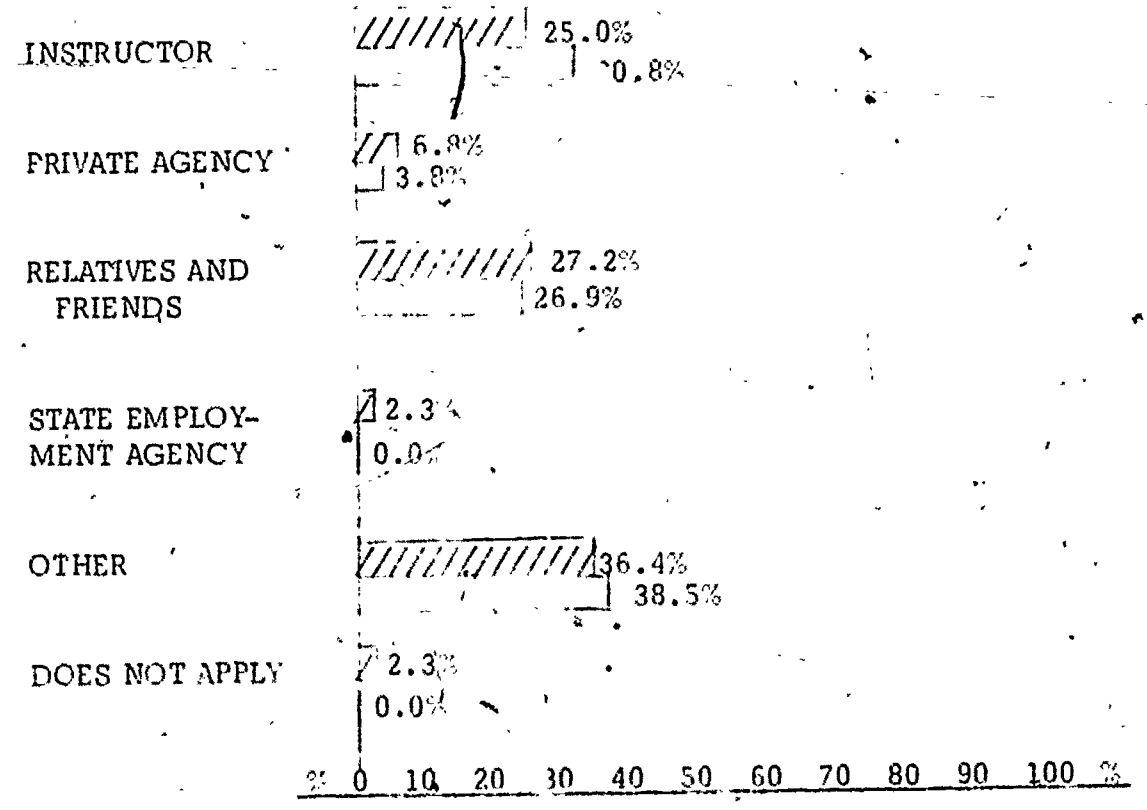
Sixteen, or 36.4% of the Building Construction, and ten, or 38.5% of the Machine Tool Technology graduates indicate other sources of assistance. They included the following:

Held job prior to graduation
Myself
The school placement
Previous employer
Previous graduate
Second job
Summer job
Newspaper

TABLE XX

SOURCE OF GREATEST HELP IN SECURING FIRST JOB

RESPONSE B/C	RESPONSE M/T/T	SOURCE
11	8	Instructor, or other vocational-technical personnel
3	1	Private employment agency
12	7	Relatives or friends
1	0	State employment agency
16	10	Other
1	0	Does not apply (I have not been employed during the year)



B/C
M/T/T

A final question under School and Community Services related to swevices provided by the vocational instructors. Tables XXI and XXII indicate responses for graduates of both programs. A large majority did not avail themselves of the services provided. Of those Building Construction graduates who responded, most rated the services as good, with some excellent, and a few in the poor category.

The Machine Tool Technology graduates were much more critical of the services provided. Although many indicated they were good, a larger number checked the poor category, with fewer responses as excellent.

TABLE XXI

UTILIZATION OF INSTRUCTOR SERVICES
BY BUILDING CONSTRUCTION GRADUATES

SERVICE	RESPONSE			
	Excellent	Good	Poor	Does Not Apply
1. Job placement	5	18	4	15
2. Counseling with personal problems	5	11	4	22
3. Help in making career decisions	4	13	2	23
4. Help in securing part-time employment	4	17	1	20
5. Help in obtaining financial assistance	6	10	1	25
6. Youth organizations	1	12	2	28
7. Recreational programs	9	13	1	18
8. Study, library and other learning resource facilities	15	14	1	11

[illegible]

[illegible]

[illegible]	PREFERENCE			
	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	3	8	4	11
[illegible]	6	3	3	20
[illegible]	4	9	3	12
[illegible]	5	5	2	15
[illegible]	1	3	3	22
[illegible]	0	1	2	24
[illegible]	1	6	2	18
[illegible]	1	21	0	2

RECOMMENDATIONS

Respondents were asked to indicate changes they would recommend in the Building Construction or Machine Tool Technology programs.

General comments and recommendations of Building Construction graduates were:

1. "The school has completely changed, and I feel unable to comment."

2. "A more basic knowledge of the tools and manufacturing procedures of today's building industry through projects such as the planning and erection of modular homes and/or other meaningful projects. I believe students would absorb more in this manner than if they were to erect mock-up buildings only to see them dismantled at a later date."

3. "A new course combining strength of materials, estimating and product knowledge should be introduced into the program. A little more emphasis on specific trade, rather than liberal arts education. Related liberal arts courses are necessary to a degree, but specialization is the trend today, and will be in the future. Vocational education must grow to meet our environmental and technical needs."

4. "More related shop instead of the other courses like English and American Literature."

5. "I would suggest putting more emphasis on work in the shop areas and items directly affecting everyday work in the field, such as all types of home construction techniques, surveying; blueprint reading should have a lot more time devoted to classroom; how to operate a building business; greater emphasis on cost estimating, less emphasis on English, due to the fact that most businessmen today have a secretary who should be capable of handling this end of the business. I would not make any other changes."

6. "More actual working time in the shop."

7. "I would recommend a teacher who is not service oriented; by this, I mean that to go by the book all the time is not always the right way. Someone with a good general background, and who keeps up-to-date with current operations, and who doesn't count the final as the whole grade at the end of the year. There is more to a course than one test."

8. "All the courses I have taken at Southern Maine Vocational-Technical Institute were okay, but I feel they should be up-dated as the years go by. My own personal opinion of Southern Maine Vocational-Technical Institute is that it is a very good and well informed trade school that is very useful and beneficial to anyone who attends it. I

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[illegible] who is thinking [illegible] the [illegible]."

9. [illegible] would be helpful to students planning to start [illegible] business [illegible] own. I believe that more emphasis should be given to ownership and management; including credit, construction loans, income tax problems, and Social Security requirements for the employer. This would be more applicable to the problems a small business faces when it is being formed."

10. "I would like to see [illegible] a new workshop. I feel that the room was limited. If there were more room, projects could be [illegible] also with [illegible] the safety would be greater. [illegible] I would [illegible] in any course to [illegible] if I felt it would [illegible] their advantage. It is a very good education."

11. [illegible] the following [illegible] in existence [illegible] I recommend change.
[illegible] weed-out of [illegible] qualified [illegible] students.
[illegible] constructive [illegible] from instructors. [illegible] emphasis on [illegible]."

12. [illegible] and listen to the [illegible] ideas of [illegible] learning in the [illegible]

13. [illegible] hands, [illegible] terminology of the [illegible] students [illegible] knowing what [illegible] I found [illegible] would [illegible]

14. [illegible]

15. [illegible]

[illegible] making. Now I've had four-five years experience, and I would be interested in teaching it to others as a hobby."

16. "I haven't been in close communication with the school as I would have liked to, but I found that parts of the Building Construction program was out-dated. I was also disturbed to find that some of the teachers were more concerned about their status than their students' interest. Finally, I believe that the basic grammar, spelling-sentence structure, course was extremely poor, as you might notice in my comment."

17. "I think that more time should be spent on estimating material and labor costs."

18. "More practice in laying out framing. More knowledge and use of new construction methods, such as pre-built wall systems, modular housing, power nailing. More understanding of the different sub-contractors that work on a house."

19. Building Construction should be extended to a three year program; so [illegible] so much has to be crammed into two years. Some up-dating of [illegible] new techniques of building. Many more."

20. [illegible] with courses that are [illegible] related to the trade. Students enrolled to do a part of construction and the now related subject destroy interest in the original intent. Building construction (shop) itself is set up and taught across more well."

21. "I believe the program is more well put together. Except for spending [illegible] and sound, I would leave it alone."

22. [illegible] year should go into more depth on working with, or along with other trades in related fields such as plumbers, electricians, etc. [illegible] should cover localities such as contracts, building permits, [illegible] plans approved, etc."

23. [illegible] - very strong and thorough.
[illegible] - poor approach and delivery. In [illegible] should be rewritten to cover [illegible] relating plumbing and [illegible] standardization of wider variety [illegible] industrial planning and land use."

24. [illegible] besides the modulars. At [illegible] once in the modulars.

25. "I would give the students the opportunity to take welding and cutting. Also, I would have more credit hours in drafting. The time put in in class and out of class is not justified with three credits."

26. "A little more person to person relationship between instructor and students."

27. "Should have a better business course to teach how to get into business."

28. "That the course be changed all to an associate degree program."

29. "The Building Construction program should have more smaller projects, such as interior finish stairs (manufactured), and the installation of these. Cabinet making and design should be more stressed than it was. Maybe the number of students should be cut down a bit. More individual attention to the student should be given. Aluminum and vinyl siding application should be taught. Modern techniques and tools should be incorporated."

30. "At the time of my education at SMVTI, Mr. Martin, who was head of the department, was wasting a lot of our shop time on what most of the class thought was not needed in our field. I think that more of the basic carpenter skills would help the student considerably."

31. "The Building Construction program should have some kind of elective or electives. Modern Technology should have every opportunity to excell."

32. "In Building Construction I needed more advanced text book material (especially in carpentry). I needed to be shown techniques on specialty tools; examples: masons' and plasterers' trowels, hammer-tackers, hardwood floor nailing machine, grinders, etc. I needed to be more acquainted with needs of other related fields like plumber, electrician, mason, excavator, well driller, telephone and electrical supplier."

33. "Building Construction - more organization for both freshman and seniors; more participation by students."

34. "I think the class was too large for the students to get full benefit out of the course. Also, too much time was spent on steel construction. I would liked to have learned more about wood."

General comments of Machine Tool Technology graduates were:

1. "More training in designing and making things, where you could do the welding and machining; more along the idea of a job shop."

2. "Forget about associated subjects like English, physics; concentrate just on machine shop studies, shop theory, and machine shop practice."

3. "More set-up work."

4. "I wouldn't recommend any changes, but I think from my experiences, blue print reading and engineering drawing I found very useful. From this standpoint, any further development of these programs would be of great help to the student.

5. "Adequate time to learn job set-ups."

6. "I feel they should introduce Engineering Drawing and Design. This particular course not only opens another field, it makes him very knowledgable of blueprints. Less physics and more hydraulics, and some electricity.

7. "If the program could include some type of on-the-job training with the companies in the immediate area, it might open the eyes of some companies for placement after graduation."

8. "Intensify training in machining more exotic materials for special applications in industry and science. Materials to be considered: glass, quartz, fiberglass, plastic, ceramic, vapor deposits of metals. The design and manufacture of special tooling for the above materials. Lapping machines, chemical cleaning and plating of metals."

9. "More N/C - Math (Trig), Blueprint Reading. Much more instruction on use of Machinist Handbook.
Eliminate instruction on quick change gear lathes (out-dated).
Eliminate most of the English classes except for associate degree students.
Eliminate instruction on gear cutting (too many auto machs.)."

10. "I would recommend more training on the use and selection of carbide tools."

11. "After the first year, let the student decide what courses he wants to take. By that time, he would have a better understanding of the course. In my case, I would have rathered to branch off into welding."

12. "Less time spent memorizing formulas and theories. More instruction on reference materials available and proper use and application of them."

13. "I had a course on threads which I felt wasn't needed."

14. "I strongly recommend eliminating related subjects, such as English Comp. and Literature, Sociology, Economics, and especially Political Science in favor of more time involved with actual shop work. I do feel that Machine Tool Technology's first year program is adequate, but the second year should have more time allowed for shop and inspection procedures."

15. "More up-to-date machinery so more up-to-date methods can be taught."

16. "To allow for more shop work in MTT."

17. "1) Modernize Machine Tool program; 2) add more machine maintenance courses; 3) more related courses (electronics)."

18. "More time on the machines"

19. "Have more work with N/C and concentrate on closer tolerances."

20. "Up-grade the automatic and tape machine training."

21. "I think with the way things are going to automation, and going very much quicker, the instructors should put more interest in numerical control and fluid power, and not on the older types of lathes with manual gears. Granted, this is important to know, but I don't think that it is more important than what this field is coming to."

22. "I don't think there is any need of going into change gears the extent that we did. (MTT)"

23. "More emphasis should be placed on numerical control. S.M.V.T.I. most definitely have a N.C. tape lathe along with its N.C. millers. Much of the older equipment should be replaced with the newer and more modern equipment."

24. "I have not worked in the field enough to know if the instruction is up-to-date or not, but this would be the only down-fall."

25. "Discontinue a lot of elective courses that should have been taught in high school. Adopt more programs that pertain to machine tool."

26. "From my viewpoint as one who had previous experience, I would have liked to gone into other areas more deeply.
There was a lot of material covered there for a two-year program for a beginner to consume effectively."

UPGRADING, RETRAINING, CONTINUING EDUCATION

Participants were asked to indicate interest in upgrading, retraining, or continuing education offerings. Of the 55 Building Construction respondents, 14, or 25%, indicated an interest in upgrading; 19, or 34.5% indicated an interest in retraining; 10, or 18.2% expressed interest in continuing education of a general nature; while 12, or 21.8% expressed no interest.

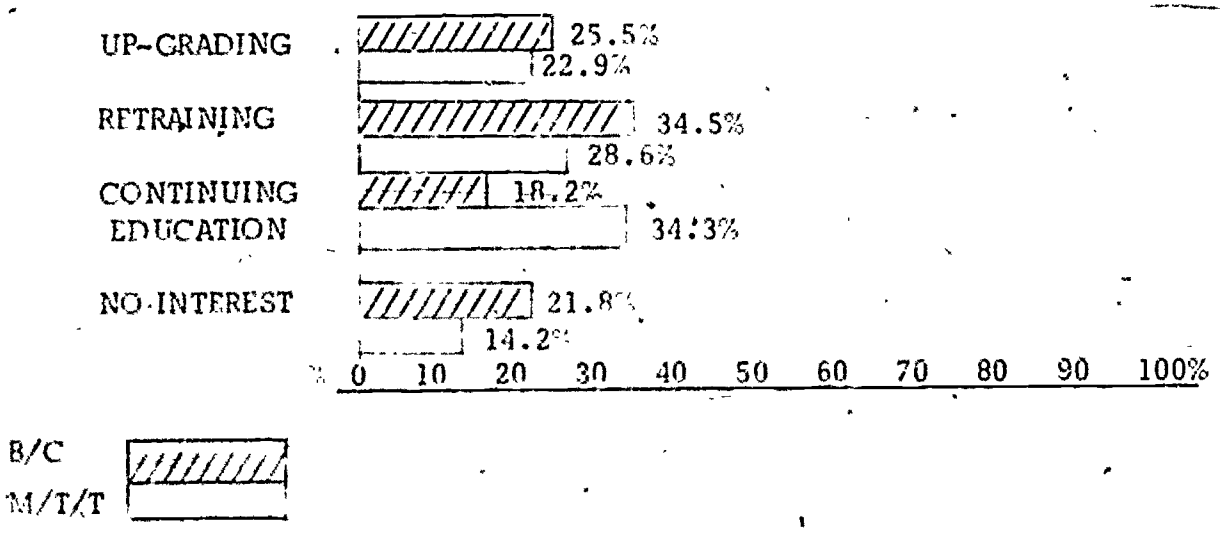
Machine Tool Technology respondents indicated that 8, or 22.9% were interested in up-grading; 10, or 28.6%, were interested in retraining; 12, or 34.3%, were interested in continuing education of a general nature, and 5, or 14.2%, expressed no interest.

Table XXIII provides a graphic presentation of responses.

TABLE XXIII

INTEREST IN UP-GRADING, RETRAINING and CONTINUING EDUCATION

Response		Question
B/C	M/T/T	
14	8	Up-grading courses to reinforce/support training
19	10	Retraining courses reflecting newer techniques
10	12	Continuing education of general nature
12	5	No interest



Respondents were given an opportunity to indicate course offerings which they would like to see offered in order to meet their up-grading, retraining and/or continuing education interests. Responses were:

Building Construction -

1. "A course in prefabrication for homes. It should also include design and erection of the prefabricated units by the students."
2. "I believe that most companies can provide its own advancement training, and if not, adequate courses are available now."
3. "Course in development planning for subdivisions."
4. "Industrial Pipefitting."
5. "Courses in concrete and code laws."
6. "Refresher courses in framing, roofing, cabinet making, and new methods of siding."
7. "Architectural Drawing for personal use."
8. "Newer techniques and processes used in residential house construction - all areas."
9. "More plumbing, electrical and masonary related to building construction. How to work with subs."
10. "Cabinet making"
11. "Architectural drafting and blueprint reading on a commercial basis; schools, hospitals, etc.."
12. "Newer techniques being developed."
13. "Steel construction, methods of construction, business management related to construction trades; codes, concrete, new materials."
14. "Get more into business."
15. "Actual training in new techniques."
16. "Courses in starting and managing a small building business; more on estimating for new construction and remodeling."

17. "More on modular construction and prefabs."

18. "Data on new building materials."

19. "Acquiring bids, landscaping, permits, waterworks, real estate."

20. "A more advanced course that gets into specialities of construction."

21. "A course on codes and other related codes needed in the construction industry."

22. "A course in how to become a building contractor; include training on using means book and estimating."

Machine Tool Technology -

1. "Specialized courses in quality control, production control, manufacturing management."

2. "A course on newer processes and new ways of set-up."

3. "Supervisory courses."

4. "Machine design and strength of materials"

5. "Special courses for up-grading and retraining"

6. "Full-time course in welding".

7. "Occasional seminars for up-dating, and latest advancements of our trade."

8. "Course on carbides and other new cutting tools and their uses."

9. "How to communicate with people; how to make decisions; how to run a successful business."

10. "Numerical Control"

11. "New types of lathes and machines along with numerical control and quality control."

12. "I would like to keep up with numerical control - computer applications"

13. "Foundry and forging knowledge".

V CURRICULUM EVALUATION

Tables XXIV through XLVII indicate Building Construction graduate responses, or ratings of all courses included in their curriculum.

A majority of Building Construction respondents indicated that 14 of the 24 courses were okay/adequate, with smaller percentages indicating increases, reduction, or change. Elimination, or reductions were recommended for American Literature and General Physics I and II. Increases were recommended for Business Management I, Blueprint Reading and Sketching, Architectural Drafting, Surveying, and Building Construction - BC 212. 62 specific changes were noted for 19 courses.

BUILDING CONSTRUCTION

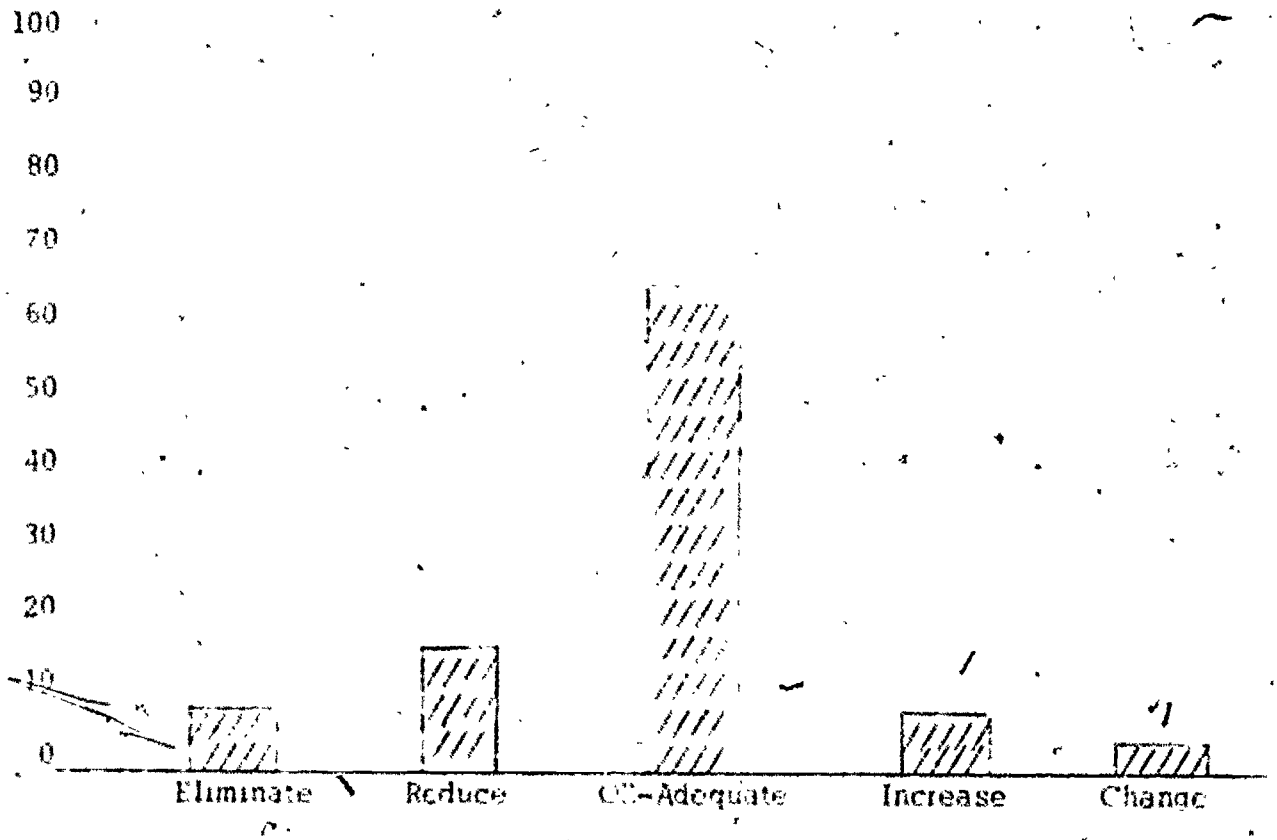
TABLES XXIV through XLVII

BUILDING CONSTRUCTION

TABLE XXIV

COMMUNICATIONS

	Number	Percentage
Eliminate	3	8.8
Reduce	5	14.8
OK-Adequate	22	64.7
Increase	3	8.8
Change	1	2.9
	34	100.0



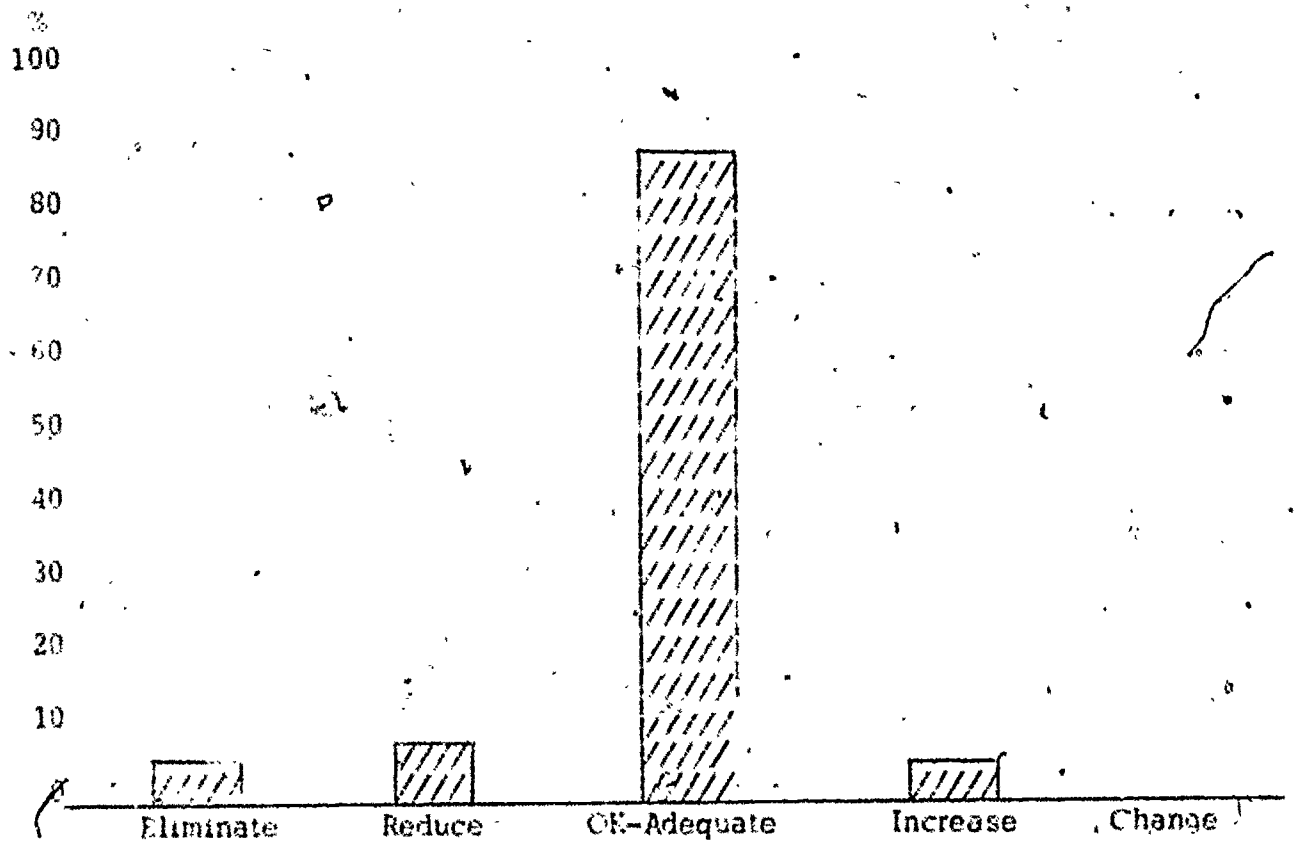
Change Comments:

1. "Work with a set of specifications.
   Mr. Paraitis - excellent delivery and emphasis in all English courses."

TABLE XXV

COMMUNICATIONS II

	Number	Percentage
Eliminate	1	3.4
Reduce	2	6.9
OK-Adequate	25	86.3
Increase	1	3.4
Change	0	0.0
	29	100.0



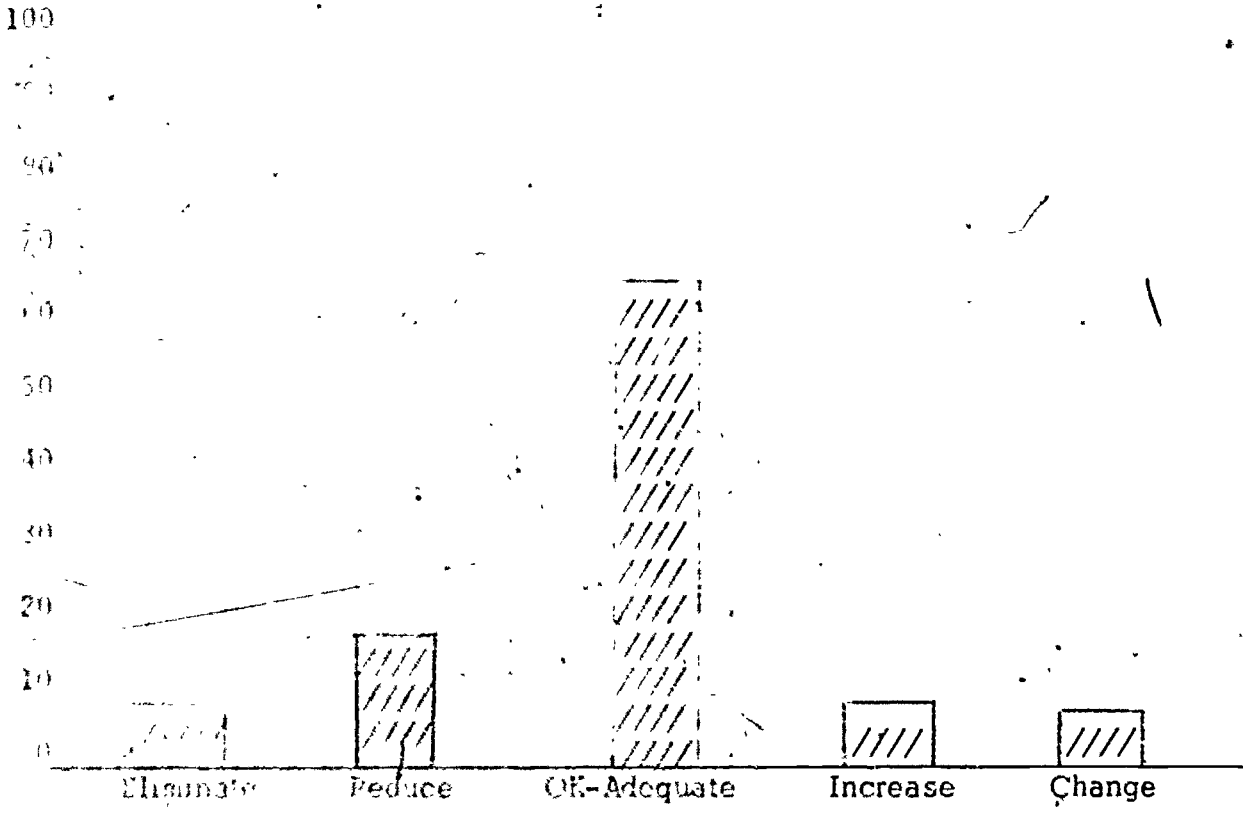
Change Comments:

None

TABLE XXVI

[illegible] COMPOSITION

	Number	Percentage
Eliminate	3	7.7
Reduce	6	15.4
OK-Adequate	25	64.1
Increase	3	7.7
Change	2	5.1
	39	100.0

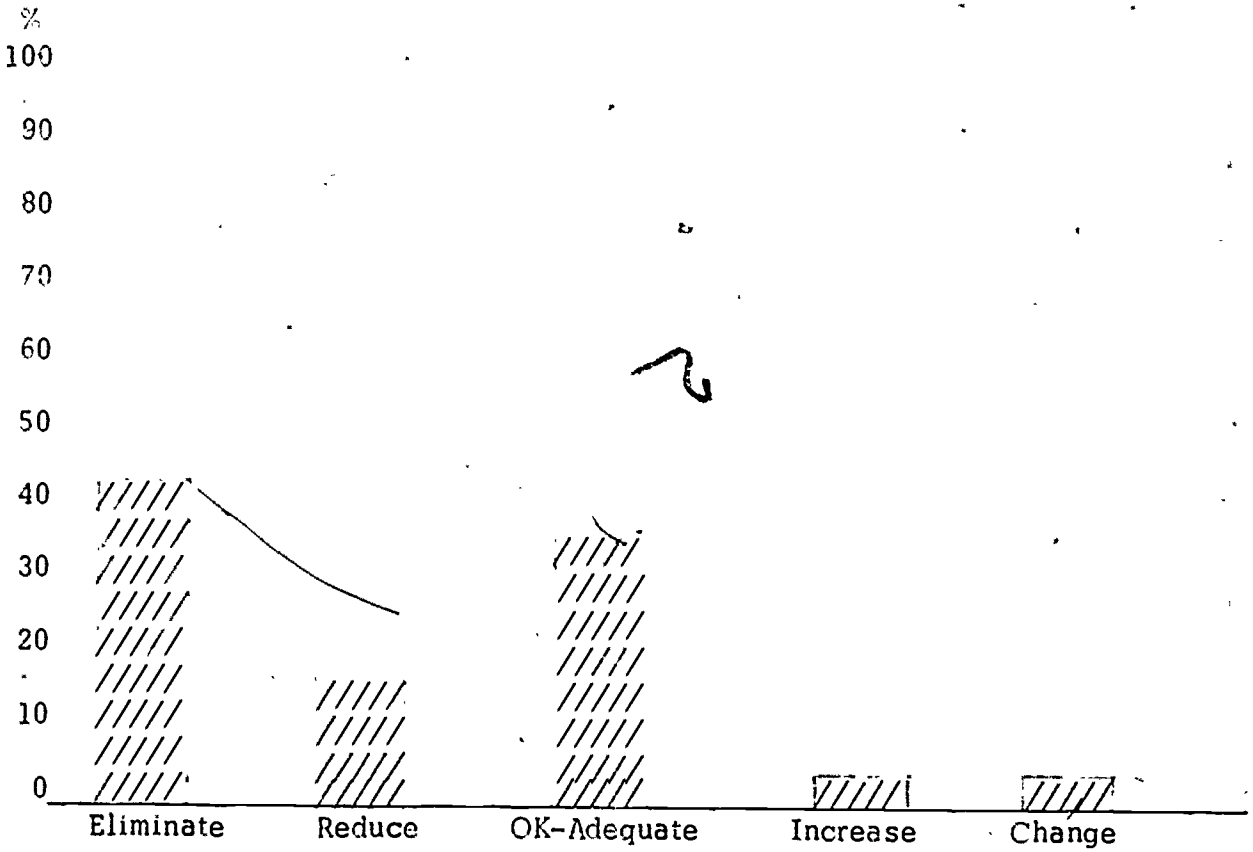


Change Comments:

TABLE XXVII

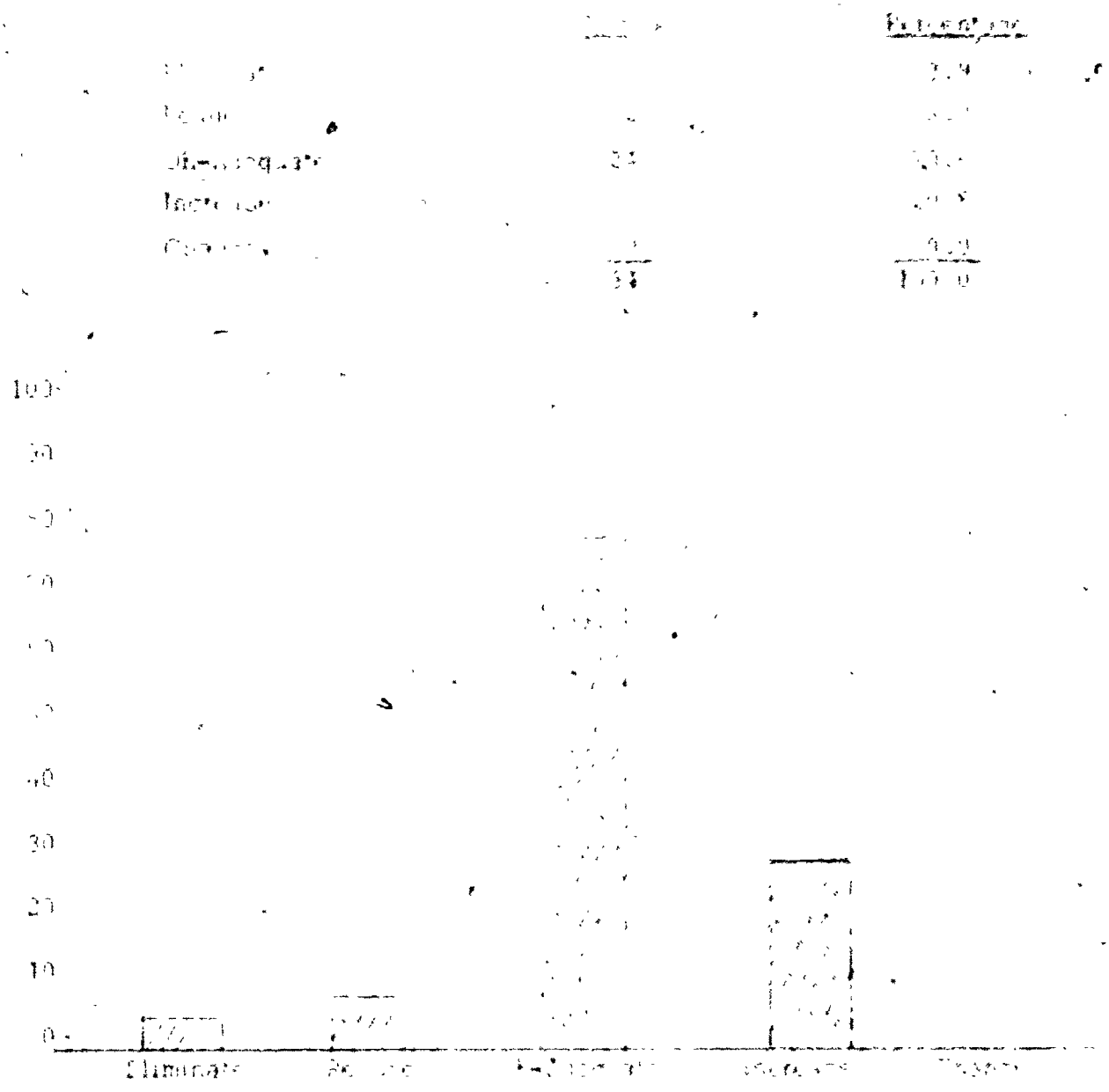
AMERICAN LITERATURE

	Number	Percentage
Eliminate	15	42.9
Reduce	6	17.1
OK--Adequate	12	34.4
Increase	1	2.8
Change	1	2.8
	35	100.0



Change Comments:

1. "Mr. George Paradis is one of the most outstanding instructors I've had at either SMVTI, or UMPG."
2. "Eliminate - taught in high school."
3. "Eliminate - irrevelent."



Change Concepts:

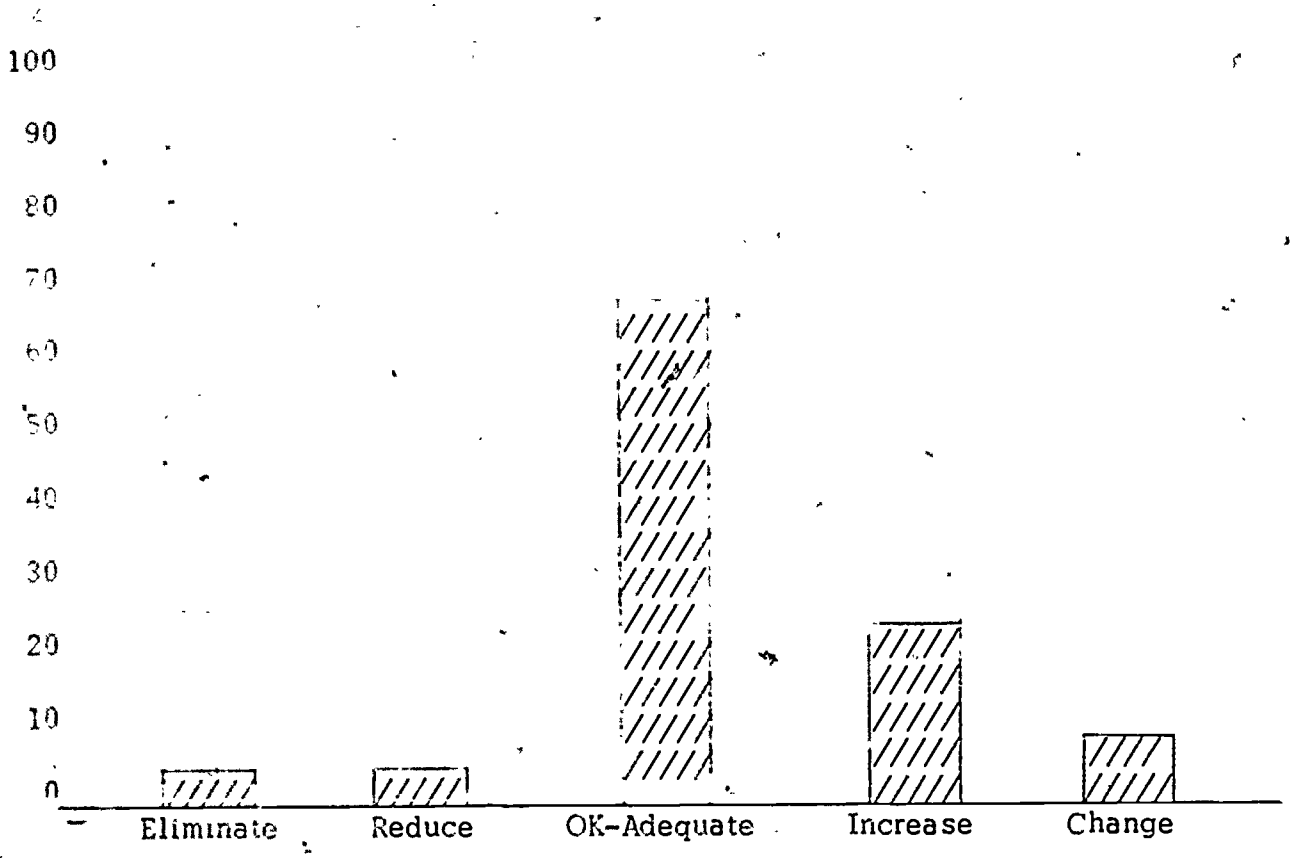
1. "Excellent", [illegible]

	Percentage
	0.0
	0.0
	32.2
	35.0
	2.8
	100.0

TABLE XXX

MATHEMATICS II

	Number	Percentage
Eliminate	1	2.6
Reduce	1	2.6
OK-Adequate	26	68.4
Increase	8	21.2
Change	2	5.2
	38	100.0



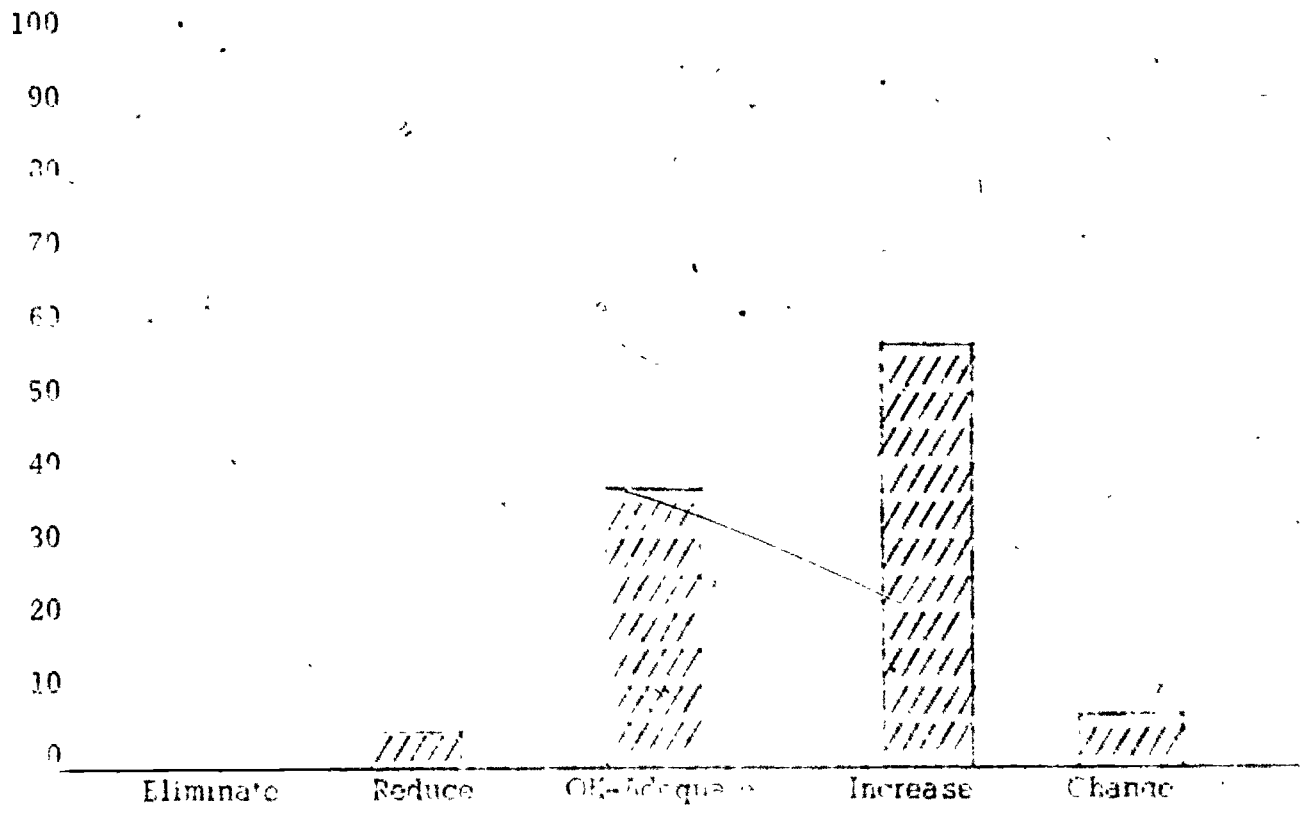
Change Comments:

1. "Eliminate logs - stress trigonometry."
2. "Increase - application of logarithms and trigonometry."

TABLE XXXI

BLUEPRINT READING AND SKETCHING

	Number	Percentage
Eliminate	0	0.0
Reduce	1	2.3
OK-Adequate	16	36.4
Increase	25	56.8
Change	2	4.5
	44	100.0



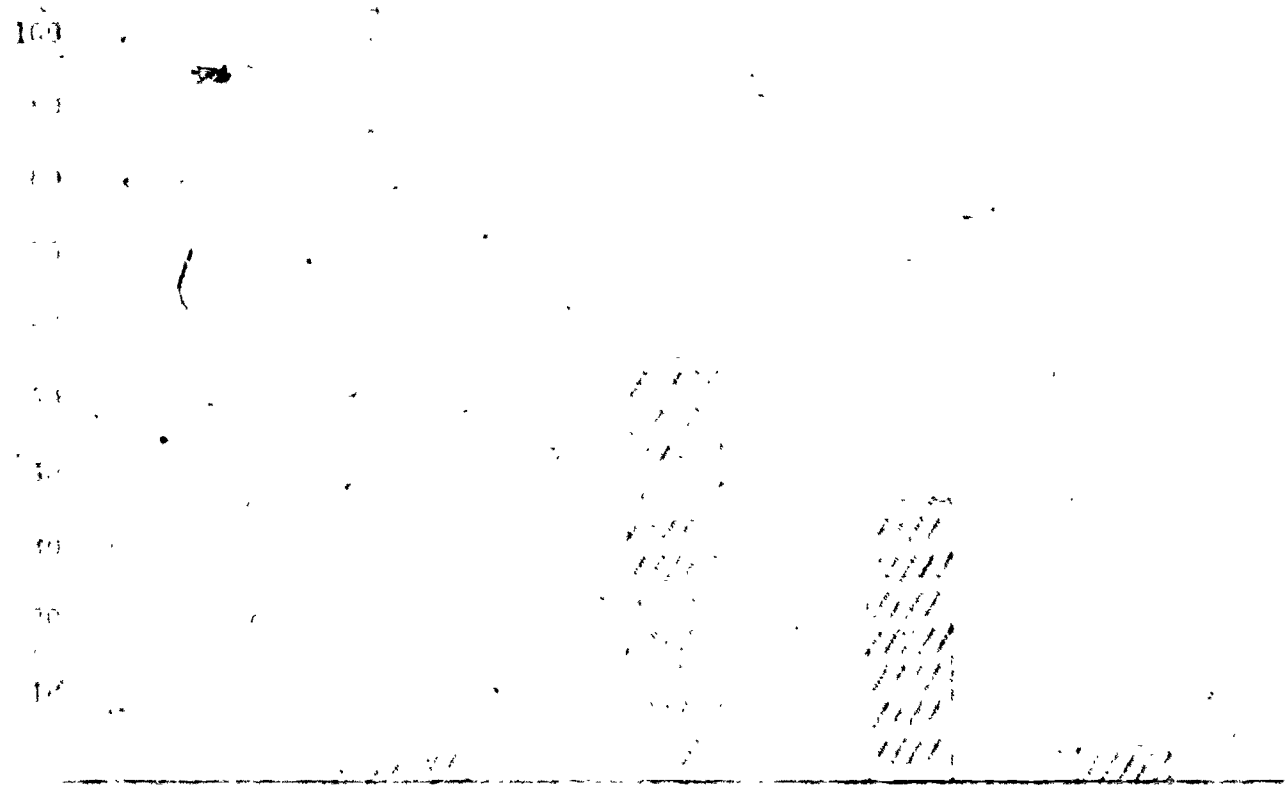
Change Comments:

1. "Many students were held back in this course - class participation - by the students who did not study - 'Weed them out'."
2. "This is a vital part of the program, [illegible] a Dodge Sun Machine (micro-film). There is a need to [illegible] with the times."
3. "Need more actual job blueprints and layout made available."
4. "Apply or relate [illegible] field of [illegible]."

TABLE XXXII

INTERDISCIPLINARY ARCHITECTURAL LABELING

	Number	Percentage
Eliminate	0	0.0
Reduce	2	4.7
Adequate	24	55.8
Increase	16	37.2
Change	1	2.3
	43	100.0



[illegible]

1. [illegible]

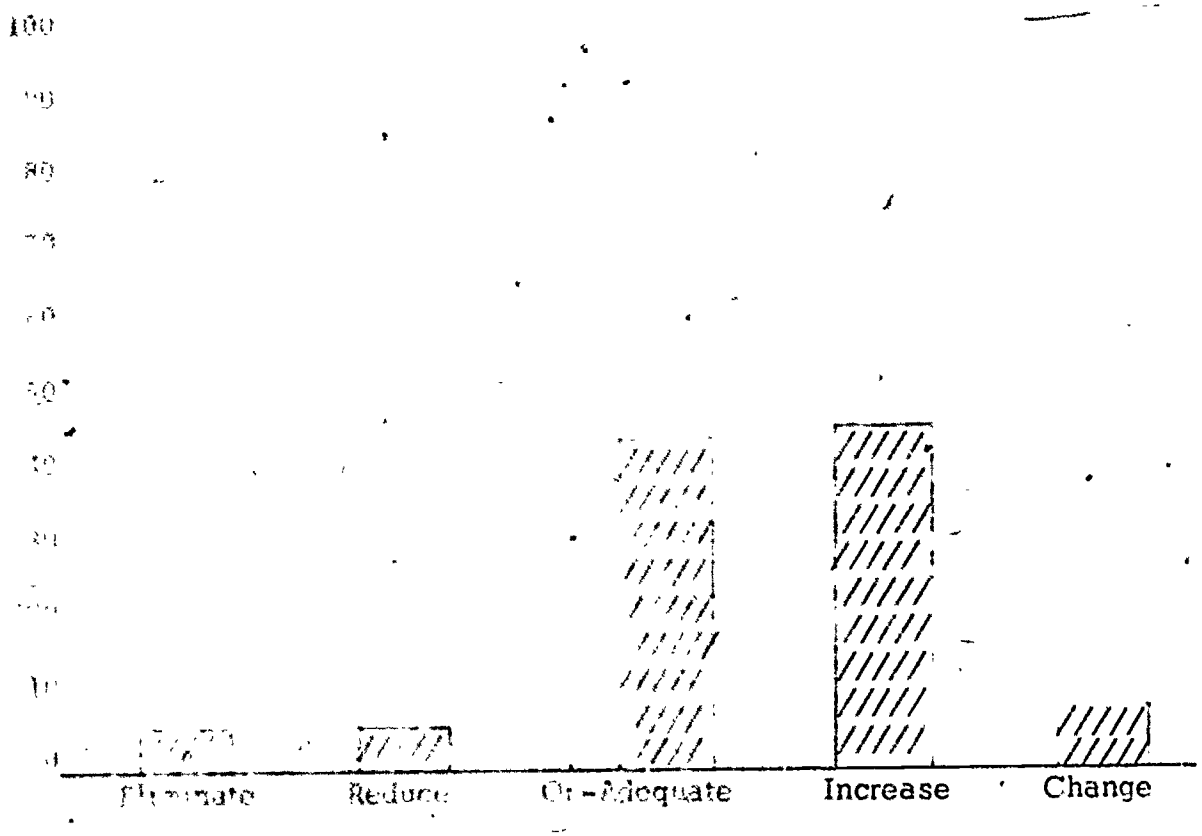
2. [illegible]

3. [illegible]

TABLE XXXIII

ARCHITECTURAL DRAFTING

	Number	Percentage
Eliminate	1	2.3
Reduce	1	2.3
OK-Adequate	19	42.2
Increase	20	44.4
Change	4	8.8
	45	100.0



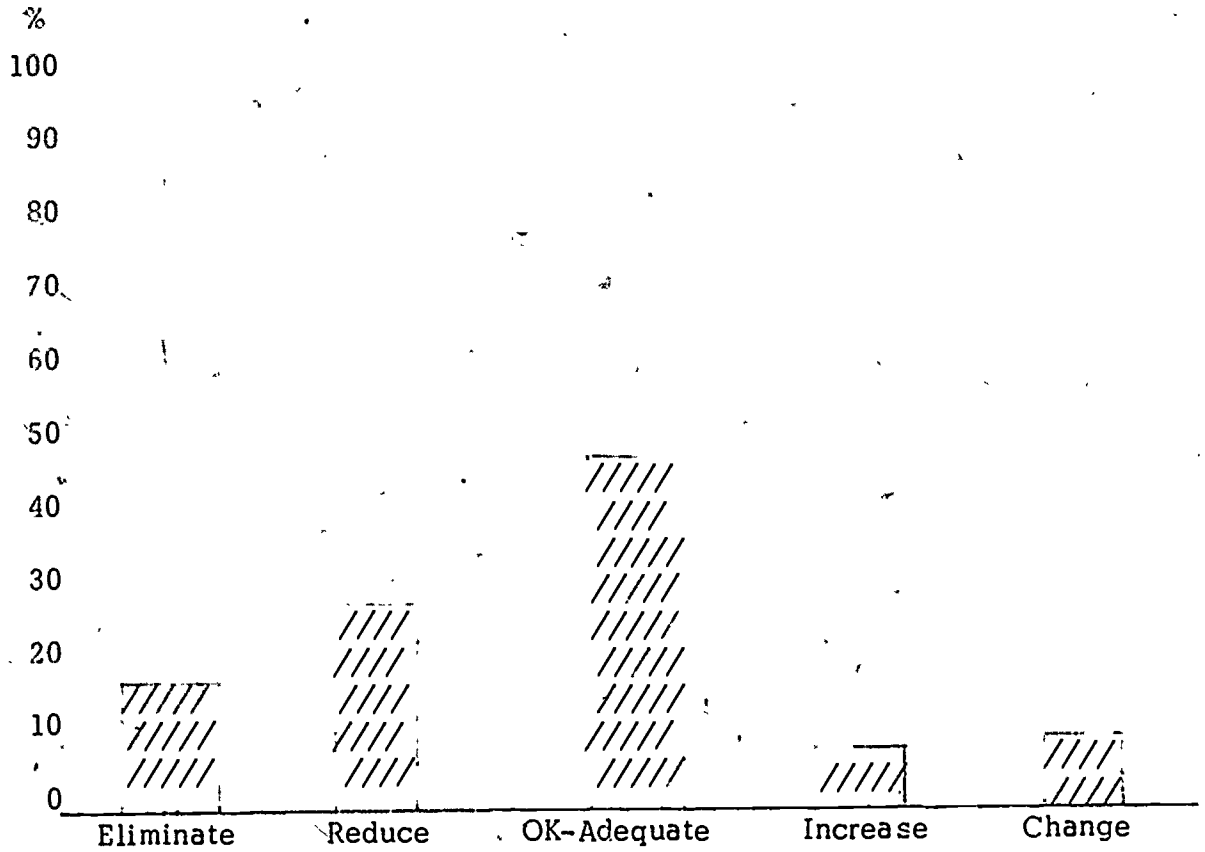
Change (continued):

1. "Give students assignments to draw as would be the case in an architectural firm."
2. "Make it less complicated."

TABLE XXXIV

GENERAL PHYSICS I

	Number	Percentage
Eliminate	6	15.4
Reduce	10	25.6
OK-Adequate	18	46.2
Increase	2	5.2
Change	3	7.6
	39	100.0



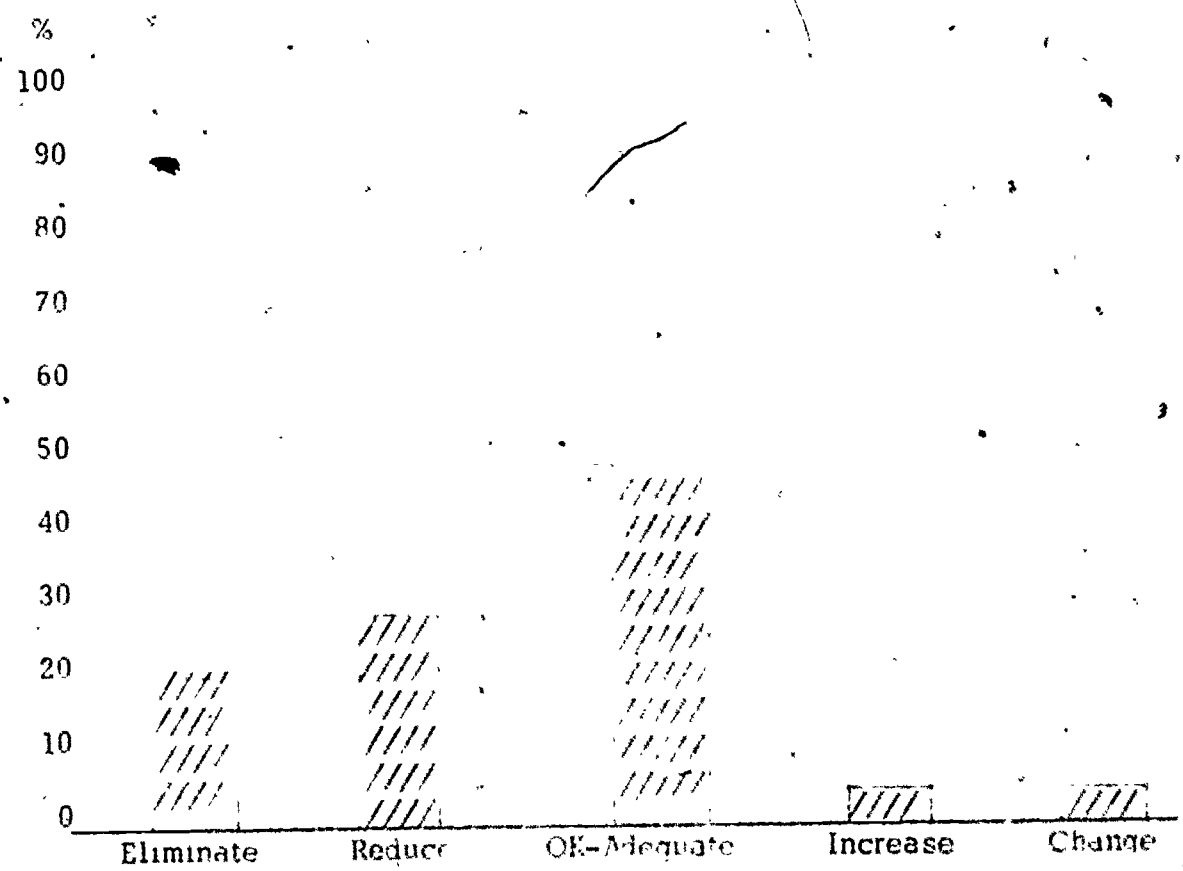
Change Comments:

1. "Increase Strength of Materials."
2. "Instructor weak on delivery and should be related to shop."
3. "Course not related to principal course of study."
4. "We should learn only things pertaining to our field."

TABLE XXXV

GENERAL PHYSICS II

	Number	Percentage
Eliminate	7	19.4
Reduce	10	27.8
OK-Adequate	17	47.2
Increase	1	2.8
Change	1	2.8
	36	100.0



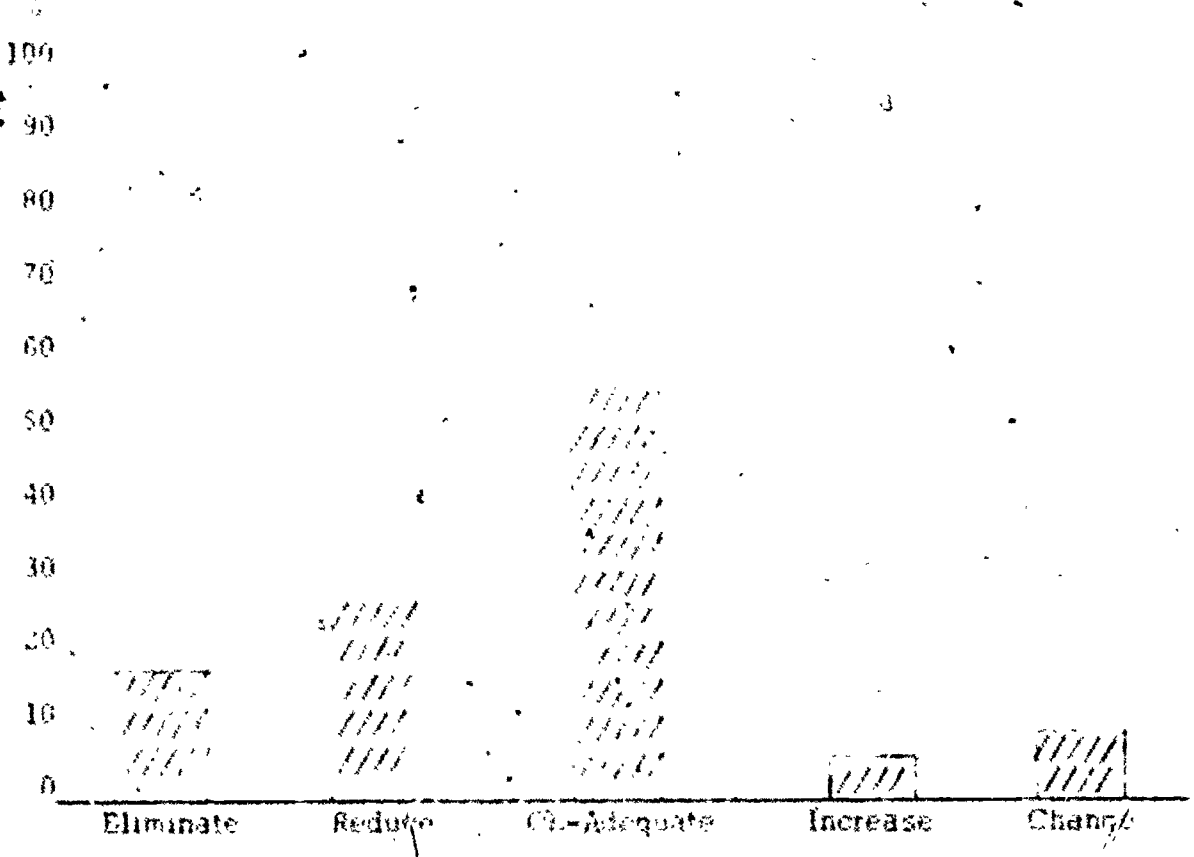
Change Comments:

1. "Instructors Graphic ability increased the development of many."
2. "Course not related to principal course of study."

TABLE XXXVI

TECHNICAL PHYSICS I

	Number	Percentage
Eliminate	3	10.7
Reduce	7	25.0
OK-Adequate	15	53.6
Increase	1	3.6
Change	2	7.1
	28	100.0

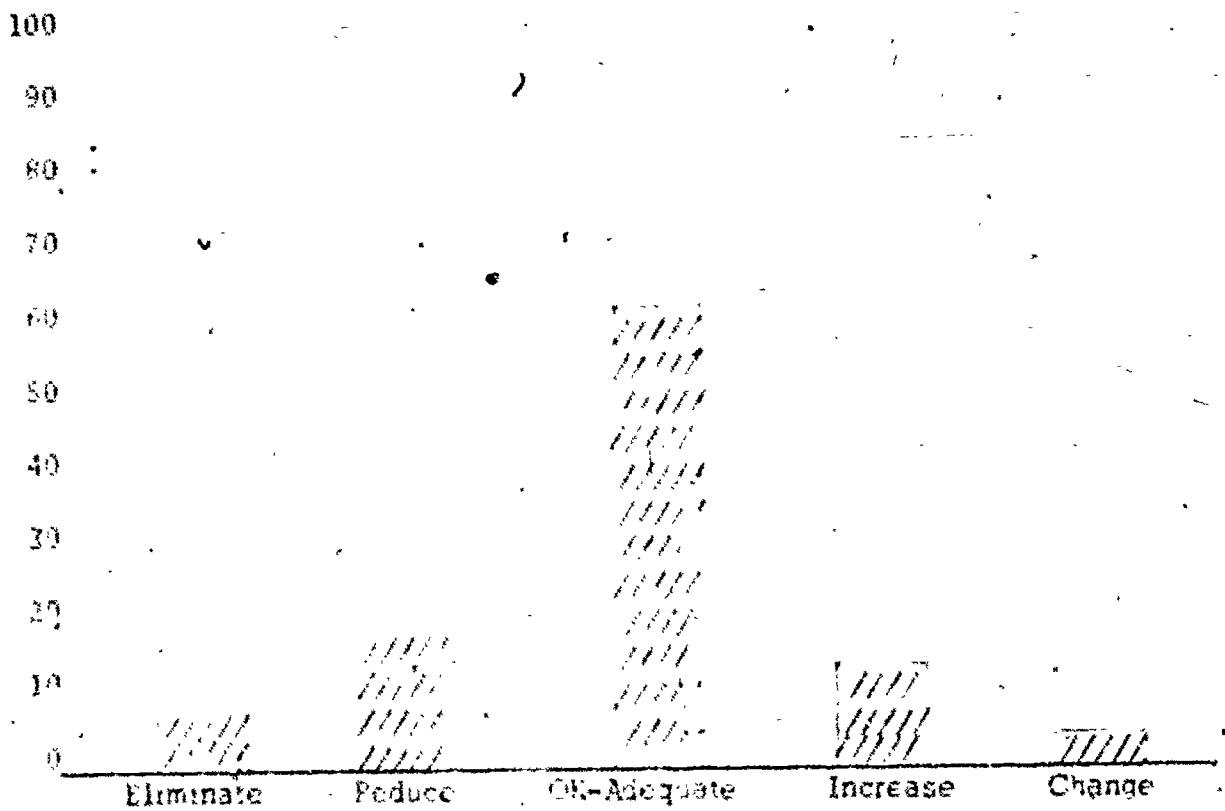


Change Comments:
None

TABLE XXXVII

TECHNICAL PHYSICS II

	Number	Percentage
Eliminate	2	7.1
Reduce	5	17.9
OK-Adequate	17	60.7
Increase	3	10.7
Change	1	3.6
	28	100.0

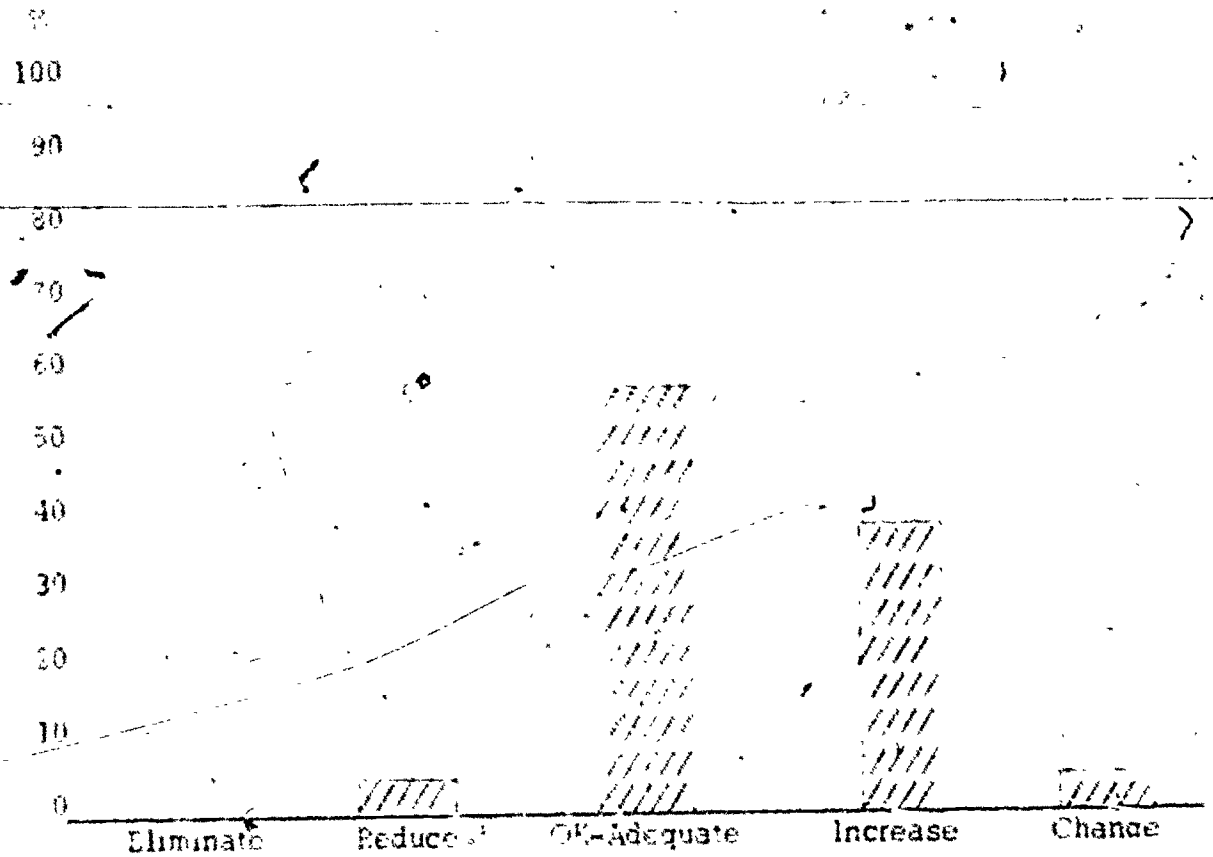


Change Comments:
None

TABLE XXXVIII

STRENGTH OF MATERIALS

	Number	Percentage
Eliminate	0	0.0
Reduce	1	2.3
OK-Adequate	25	56.8
Increase	17	38.6
Change	1	2.3
	44	100.0

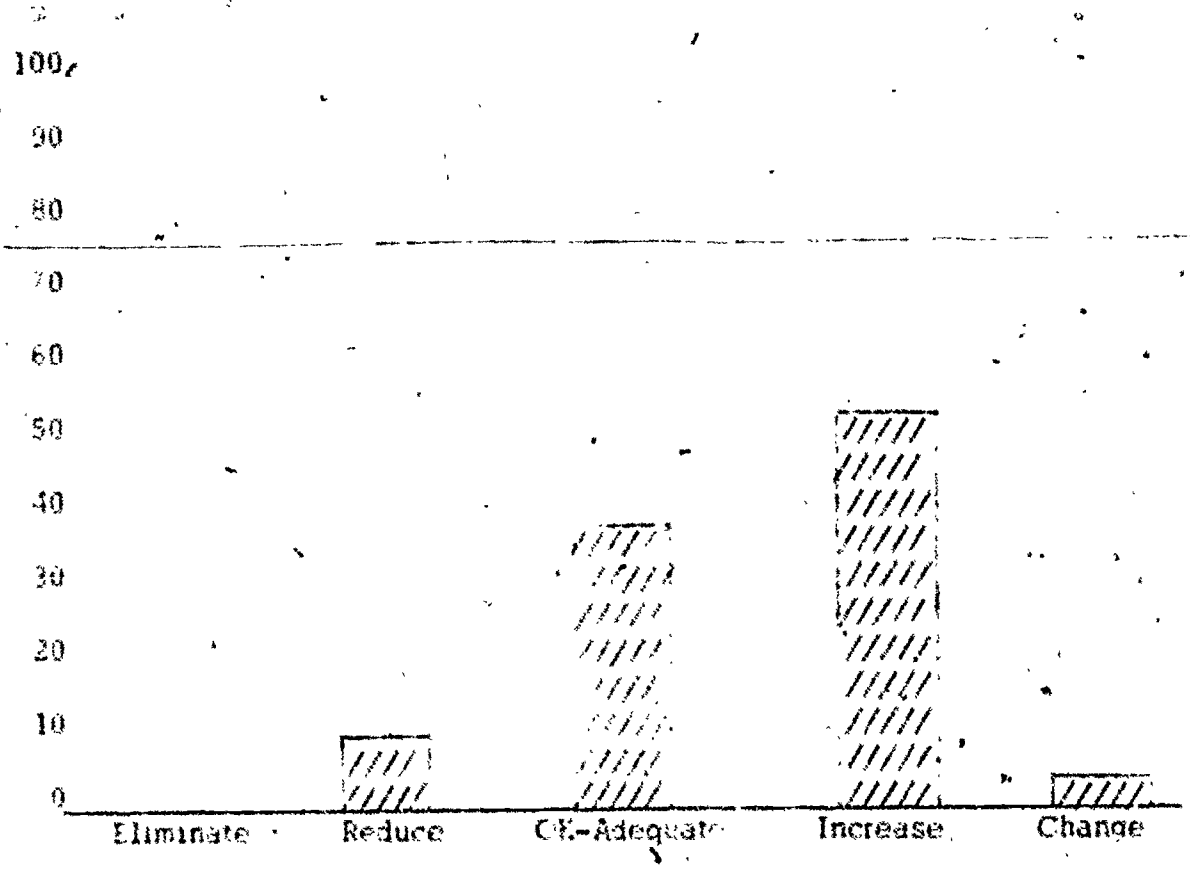


Change Comments.

1. "More emphasis on basic residential construction. Problems, rather than on complex situations, like ones used once in a lifetime that you forget anyway."

TABLE XXXIX

SURVEYING	Number	Percentage
Eliminate	0	0.0
Reduce	4	9.3
OK-Adequate	16	37.2
Increase	22	51.2
Change	1	2.3
	43	100.0



Change Comments:

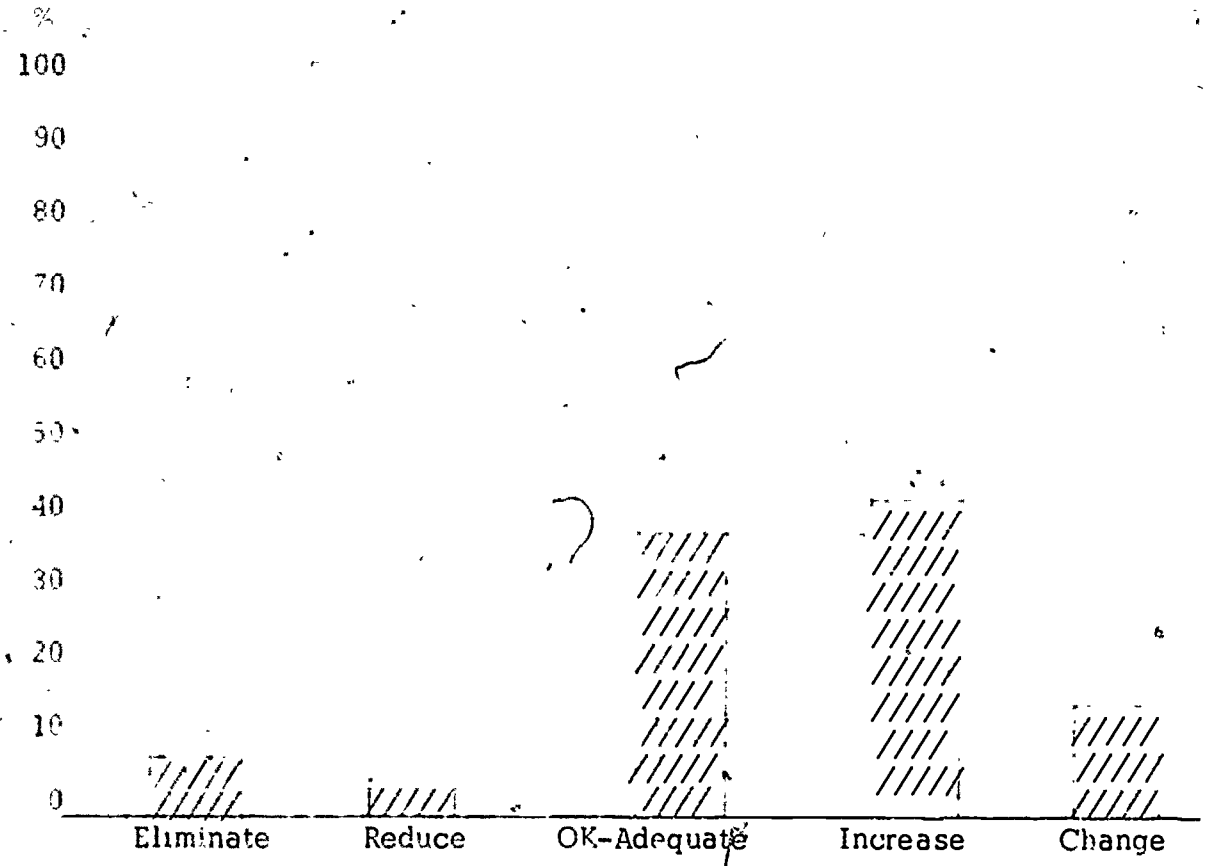
1. "Double it."
2. "There should be a separate program on surveying."
3. "Increase teacher-student-course (strictly numbers)."

[illegible]	1	8.3
[illegible]	1	8.3
[illegible]	2	16.7
[illegible]	1	8.3
[illegible]	7	58.3
	12	100.0

TABLE XLI

BUSINESS MANAGEMENT I

	Number	Percentage
Eliminate	2	5.4
Reduce	1	2.7
OK-Adequate	14	37.8
Increase	15	40.5
Change	5	13.5
	37	100.0

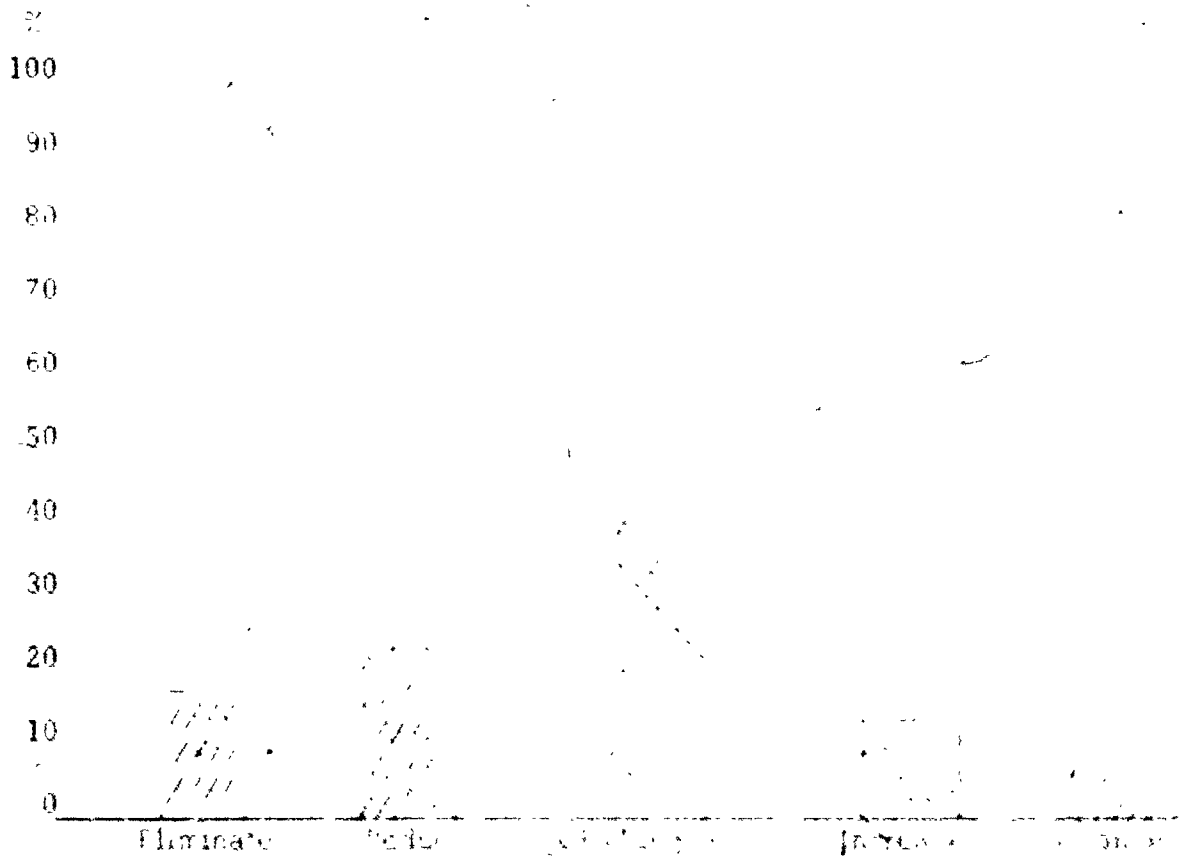


Change Comments:

1. "Emphasize small business bookkeeping and organization."
2. "Small Business course."
3. "Instructor fails to relate. Plans through the subject matter with no concern to application."
4. "I would like to see more done in area of owning a small business."

ECONOMIC

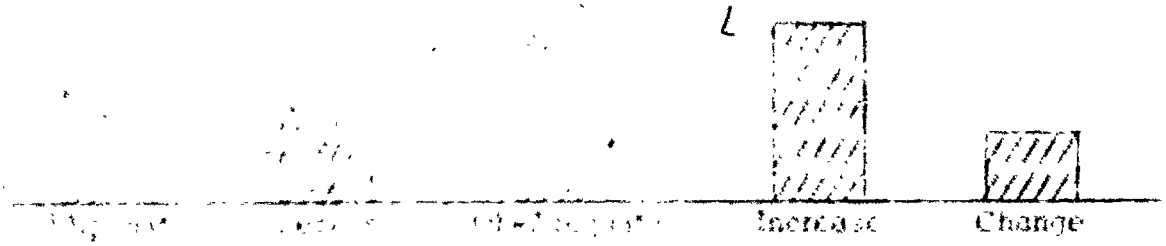
Eliminate		[illegible]
Reduce	[illegible]	[illegible]
OK-Adequate	[illegible]	[illegible]
Increase	[illegible]	[illegible]
Change	[illegible]	[illegible]



Change Comments:

1. [illegible]
2. [illegible]
3. [illegible]

		Percentage
[illegible]	[illegible]	18.2
[illegible]	[illegible]	12.1
[illegible]	[illegible]	42.4
[illegible]	[illegible]	21.2
[illegible]	[illegible]	6.1
		100.0

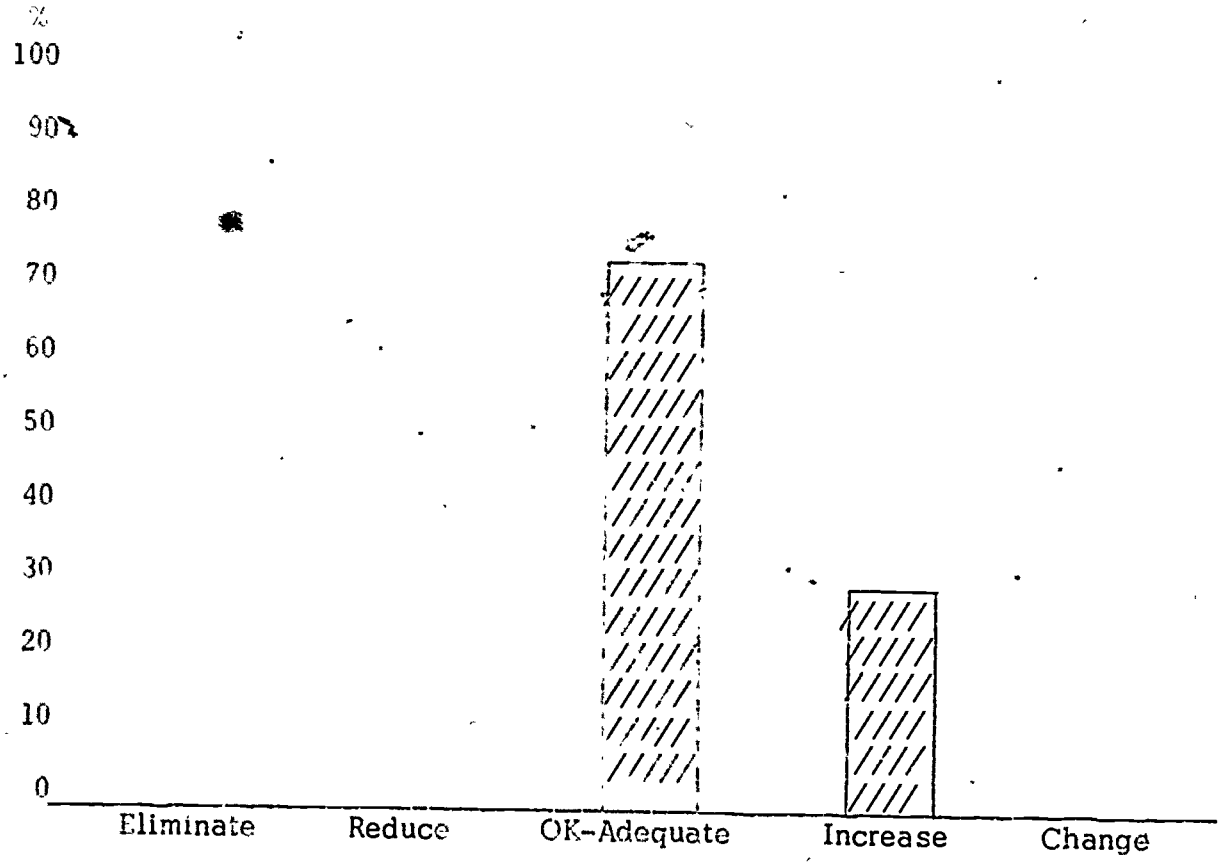


[illegible] The instructor had wrong.

TABLE XLIV

BUILDING CONSTRUCTION-BC111

	Number	Percentage
Eliminate	0	0.0
Reduce	0	0.0
OK-Adequate	31	70.5
Increase	13	29.5
Change	0	0.0
	44	100.0



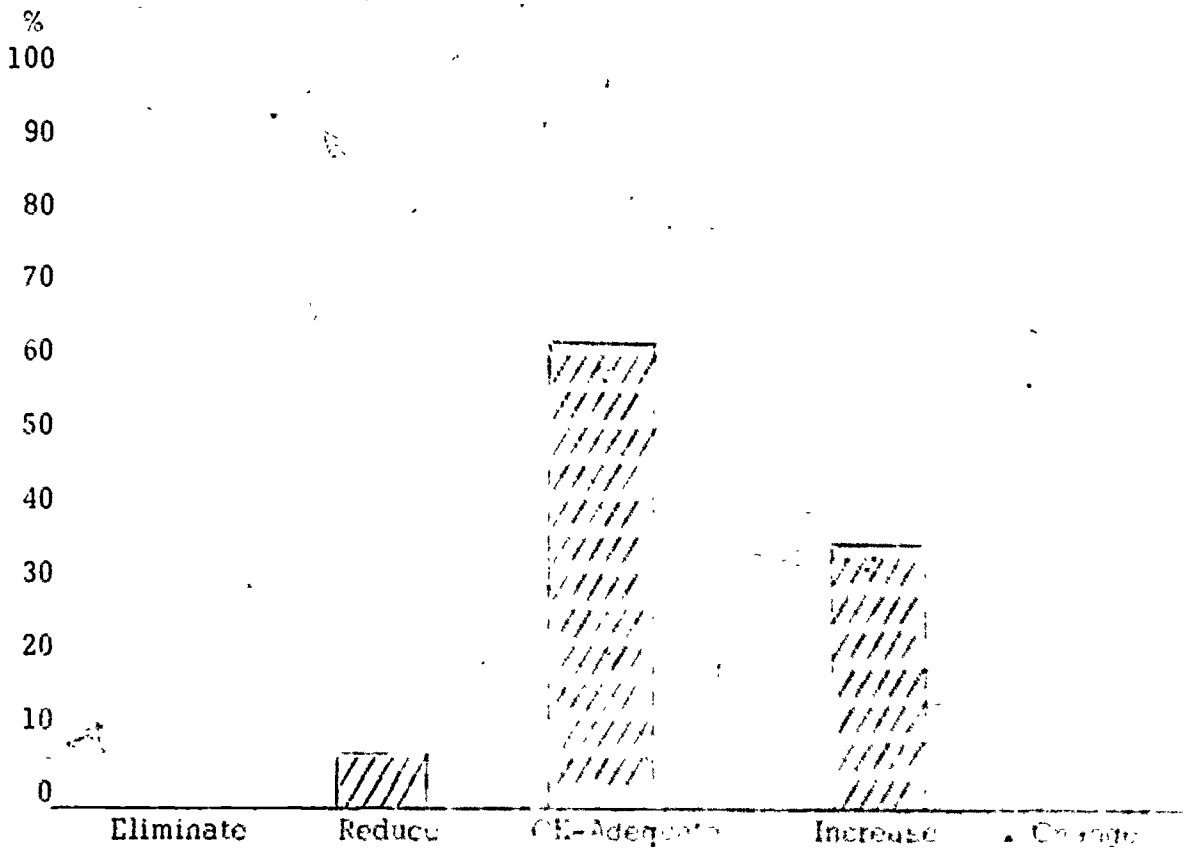
Change Comments:

1. "More on product knowledge and estimating"
2. "Eliminate erection of batter boards."
3. "Increase lot and foundation layout and use of transit, buying, estimating material needs and roof framing."
4. "Excellent course."

TABLE XLV

BUILDING CONSTRUCTION - BC112

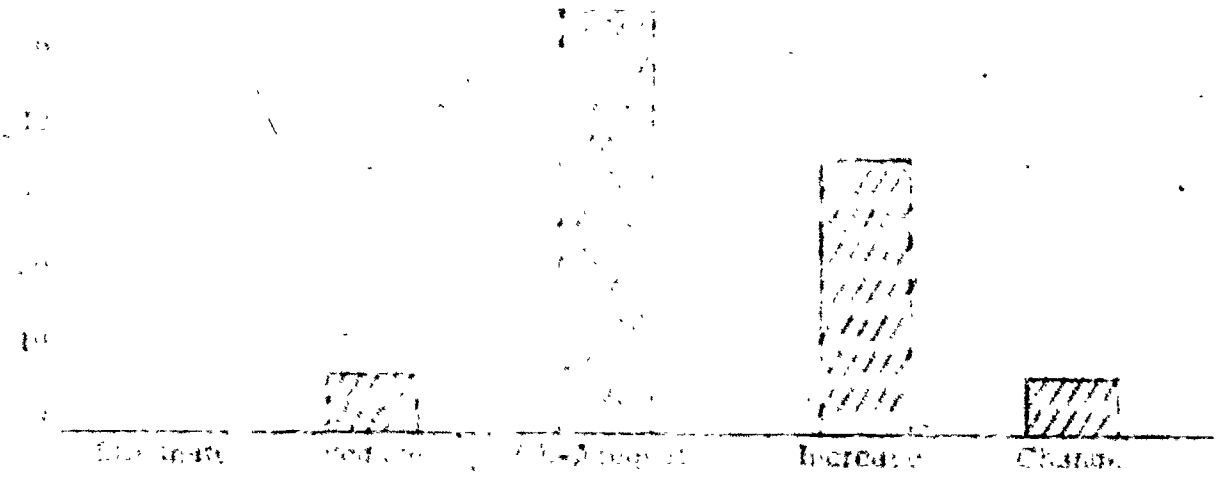
	Number	Percentage
Eliminate	0	0.0
Reduce	2	4.5
OK-Adequate	27	61.4
Increase	15	34.1
Change	0	0.0
	44	100.0



Change Comments:

1. "Estimating increased."
2. "Less time on dry-wall."
3. "Excellent"

		Percentage
[illegible]	[illegible]	0.9
[illegible]	2	1.6
[illegible]	[illegible]	54.5
[illegible]	[illegible]	36.3
[illegible]	[illegible]	4.1
	[illegible]	100.0



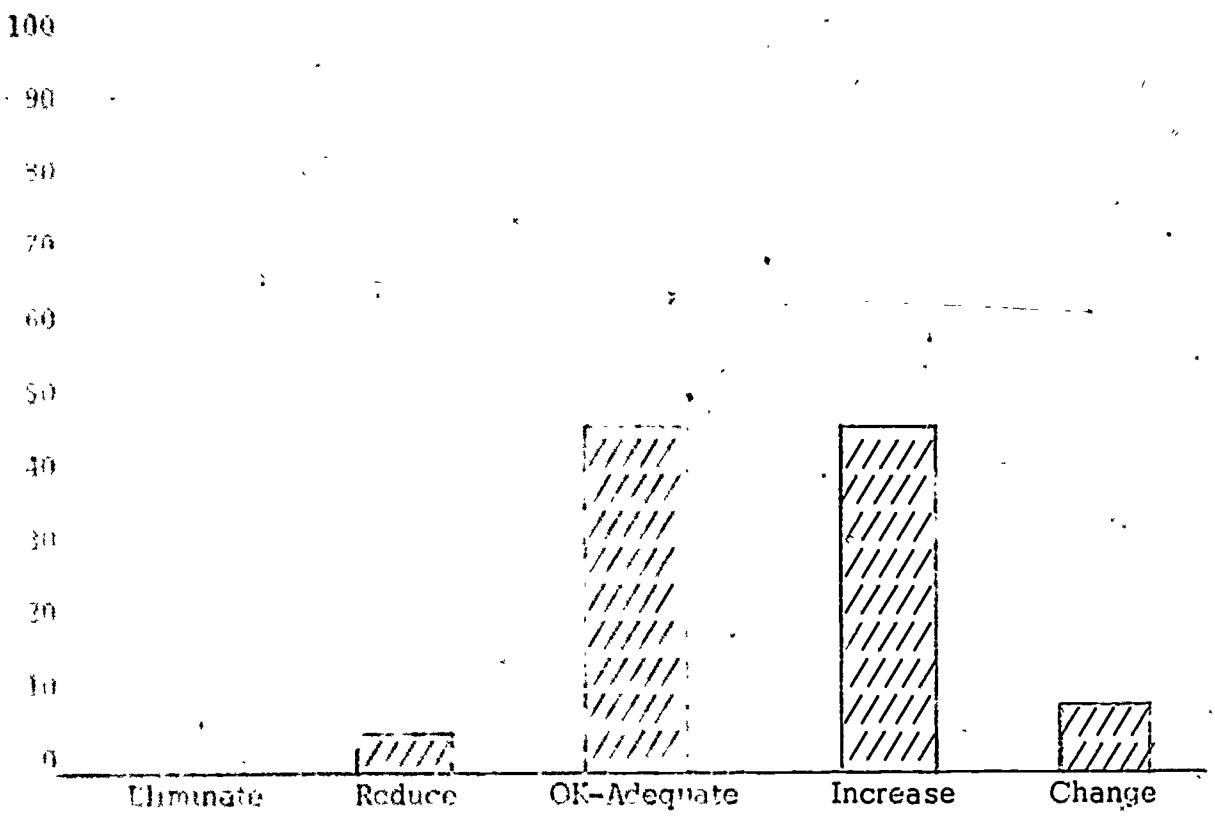
[illegible]

1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]
5. [illegible]
6. [illegible]

TABLE XXVI

BUILDING CONSTRUCTION - BC212

	Number	Percentage
Eliminate	0	0.0
Reduce	1.	2.3
OK-Adequate	20	45.5
Increase	20	45.5
Change	3	6.7
	44	100.0



Change Comments:

1. "More on concrete and cabinetry."
2. "The course could use a more detailed explanation of designing of structural steel and wood."
3. "More on interior wall finishes, trusses, installing garage doors, cabinets, design and layout of stairs."
4. More on small business practices - as in construction business. There are many things such as contracts, building permits, furding, approval of plans, etc."

Table XLVII
Change Comments - continued

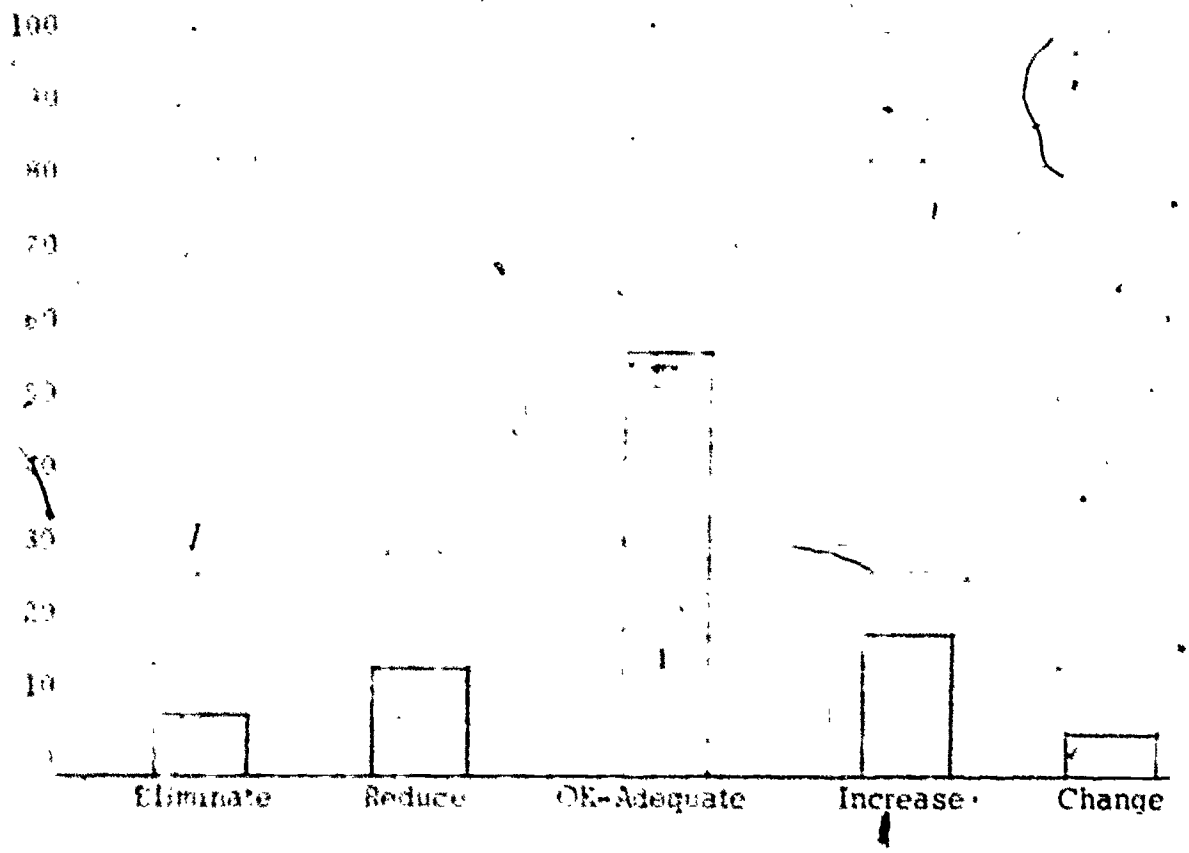
5. "More practical."
6. "Increase cabinets."
7. "Increase the installation of cabinets."
8. "Increase paneling and interior trim, installation of cabinets, and overview of small business practices."
9. "Our class did not cover these areas properly, due to circumstances beyond our control. The steel seems to be too advanced, therefore a waste of time."
10. "Increase installation of cabinets and brief overview of small business practices."
11. "Add house wiring"
12. "Course in Building Construction covered most important points, but text and methods taught were out-dated and are not used in today's construction."

Tables XLVIII through LXXIII indicate Machine Tool Technology graduate responses or ratings of all courses included in their curriculum. A majority of graduates indicated that 23 of the courses were OK/adequate, with smaller percentages indicating increases, reduction, or change. Elimination, or reduction was recommended for American Literature, while increases were recommended for Metal Fabrication I and II, and Machine Tool Technology 212. 20 specific changes were noted for 14 courses.

TABLE XLVIII

COMMUNICATIONS I

	Number	Percentage
Eliminate	2	7.7
Reduce	3	11.5
OK-Adequate	15	57.7
Increase	5	19.3
Change	1	3.8
	26	100.0



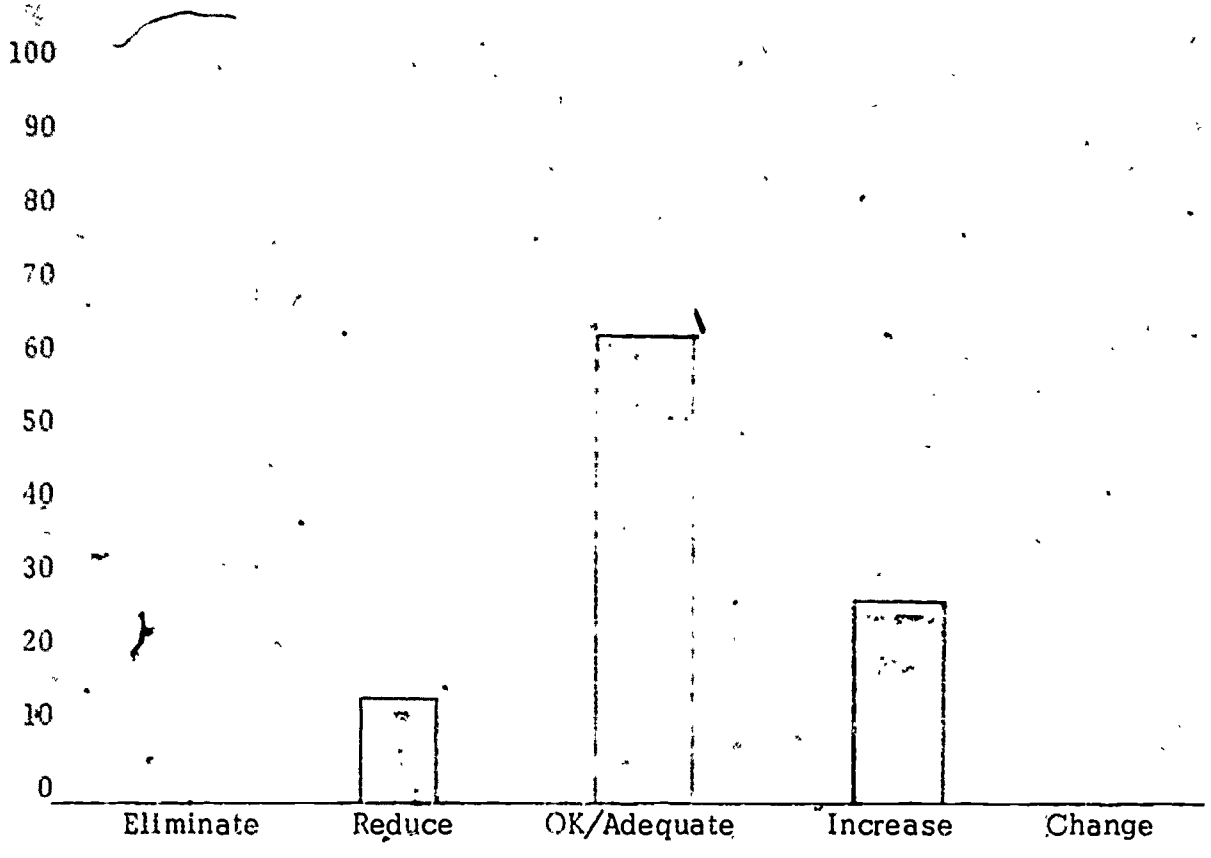
Change Comments:

1. "This material should have been learned in high school."

TABLE XLIX

COMMUNICATIONS II

	Number	Percentage
Eliminate	0	0.0
Reduce	3	11.5
OK-Adequate	16	61.5
Increase	7	27.0
Change	0	0.0
	26	100.0



Change Comments:

1. "Increase descriptions and classifications."

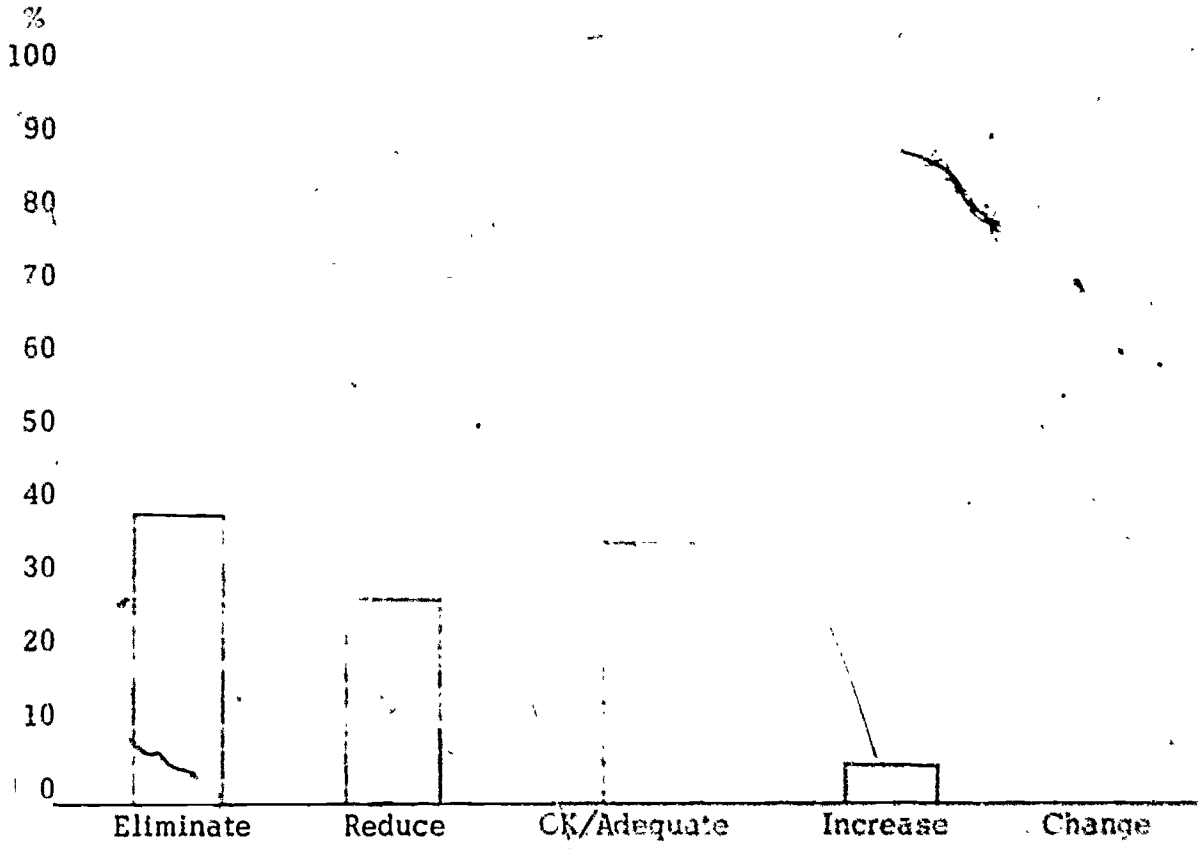
MACHINE TOOL TECHNOLOGY

TABLES XLVIII THROUGH LXXIII

TABLE LI

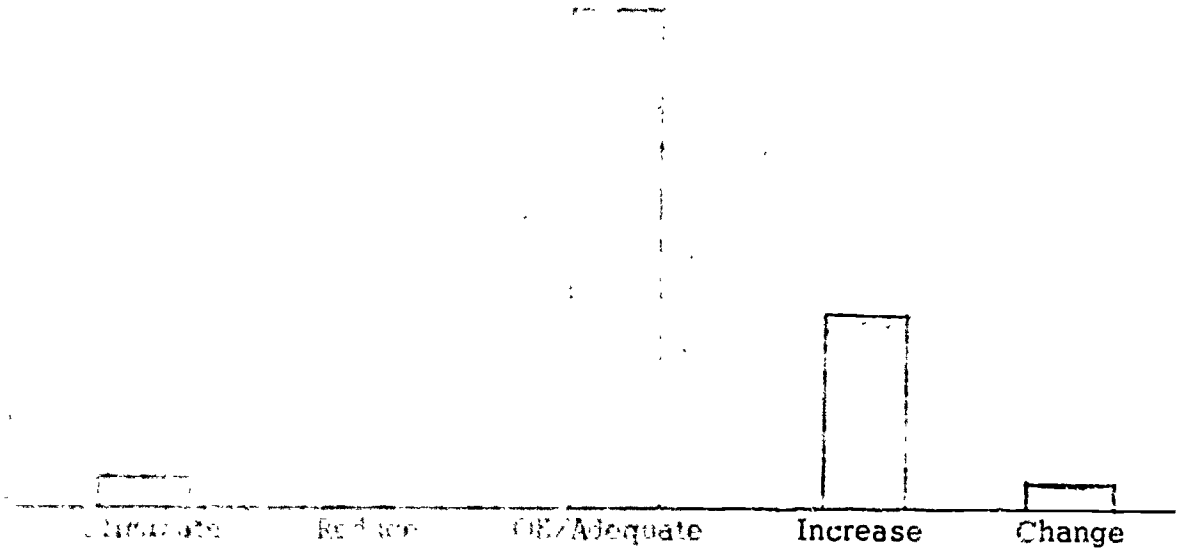
AMERICAN LITERATURE

	Number	Percentage
Eliminate	10	37.0
Reduce	7	25.9
OK/Adequate	9	33.3
Increase	1	3.8
Change	0	0.0
	27	100.0



Change Comments:
None

		Percentage
[illegible]	1	3.7
[illegible]	0	0.0
[illegible]	18	66.6
[illegible]		26.6
[illegible]	1	3.7
		100.0



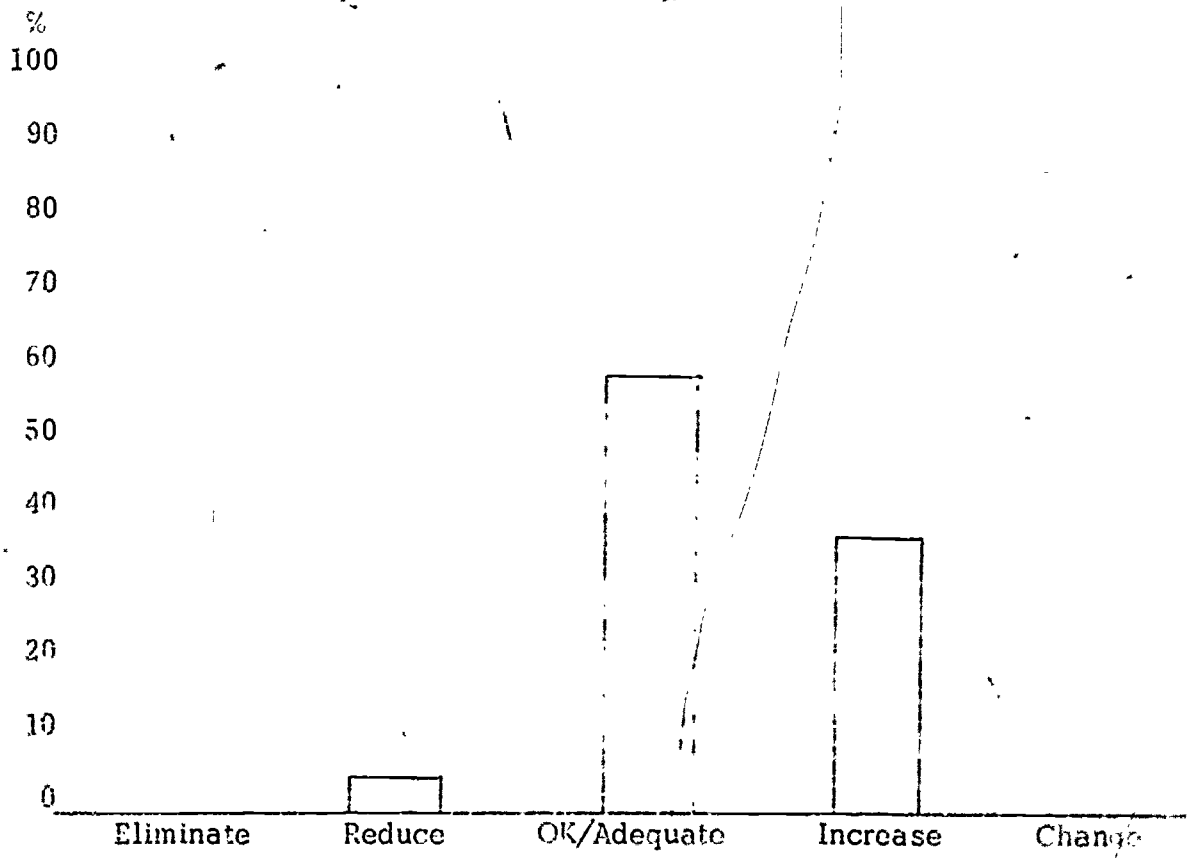
[illegible]

1. "Should be required to take Machine Tool."

TABLE VIII

MATHEMATICS II

	Number	Percentage
Eliminate	0	0.0
Reduce	1	3.7
OK/Adequate	16	59.3
Increase	10	37.0
Change	0	0.0
	27	100.0

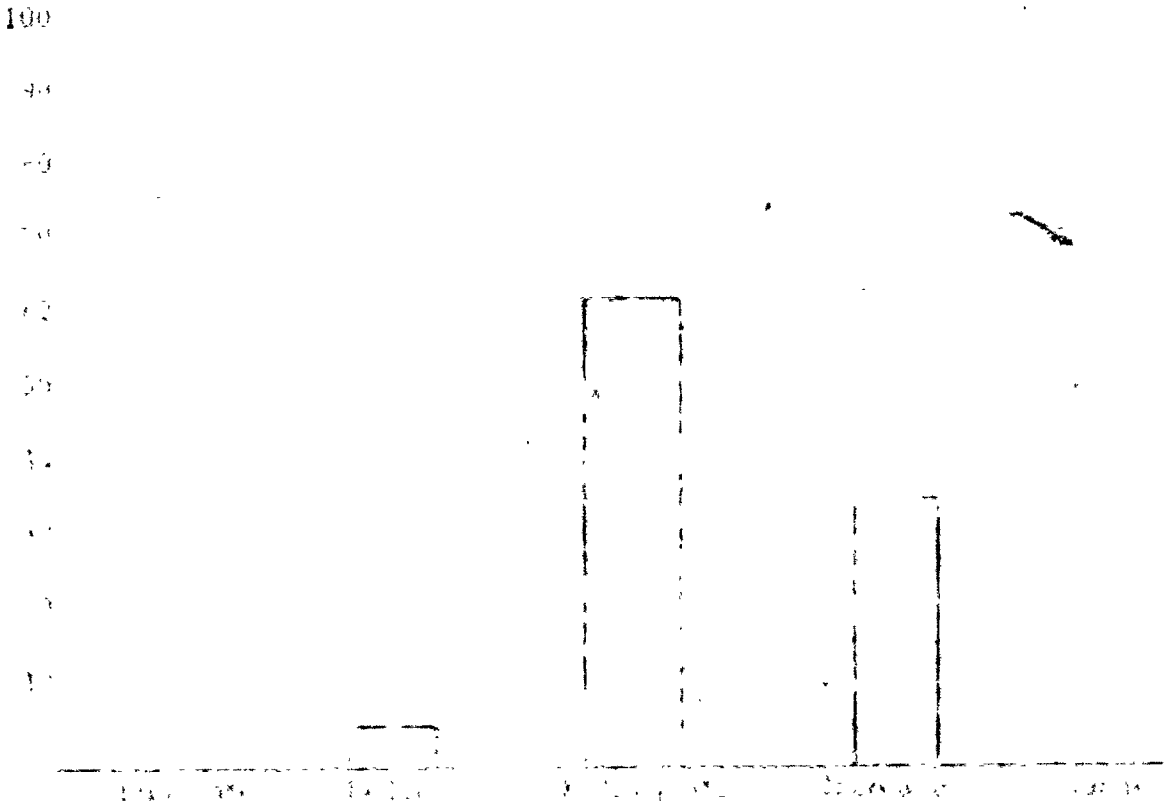


Change Comments:

None

TRIGONOMETRY

	Number	Percentage
Eliminate	0	0.0
Reduce	1	5.0
OK/Adequate	4	20.0
Increase	15	75
Omit	0	0.0
	20	100.0



	Number	Percentage
Eliminate	0	0.0
Reduce	2	8.7
OK/Adequate	14	60.9
Increase	7	30.4
Change	0	0.0
	23	100.0

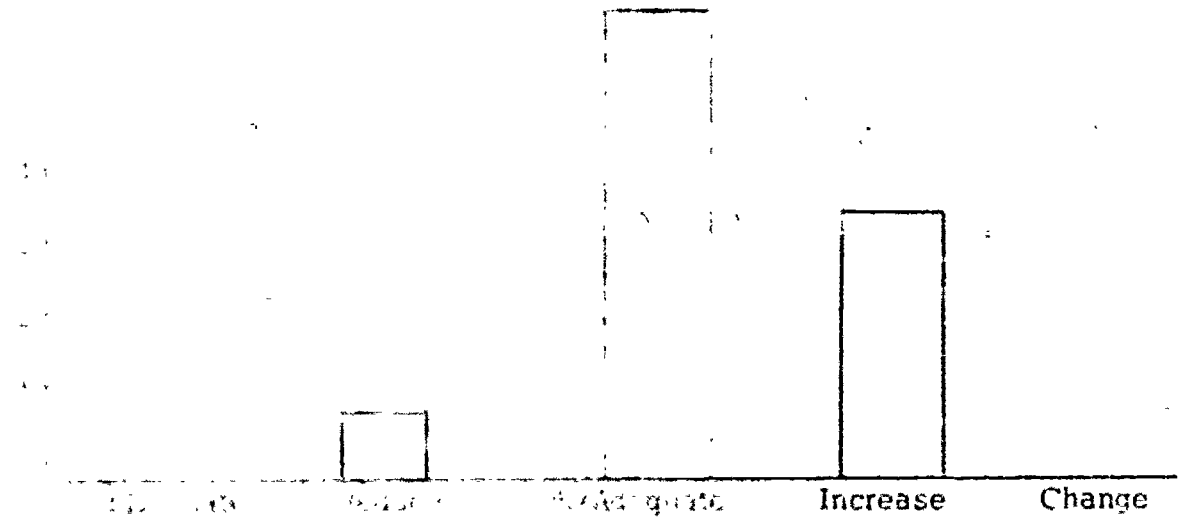
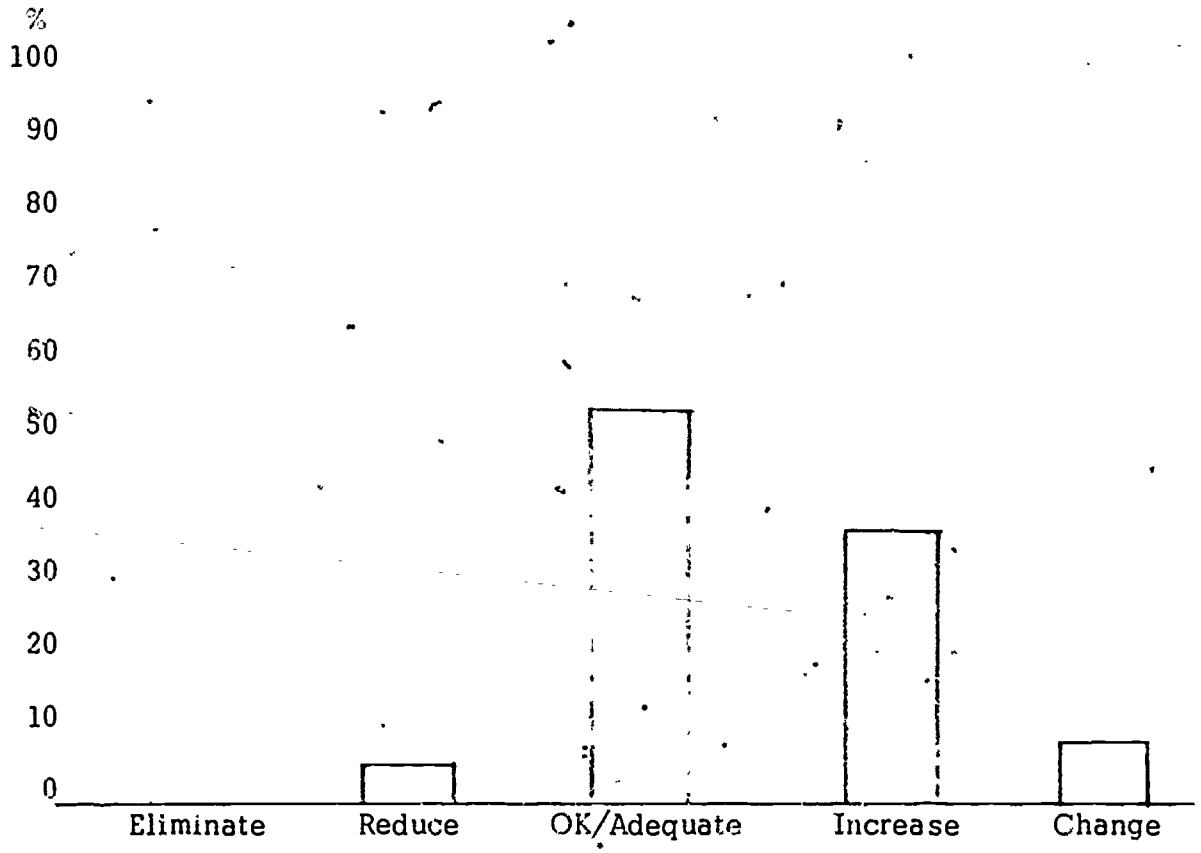


TABLE LVI

BLUEPRINT READING AND SKETCHING

	Number	Percentage
Eliminate	0	0.0
Reduce	1	3.4
OK/Adequate	15	51.8
Increase	11	37.9
Change	2	6.9
	29	100.0



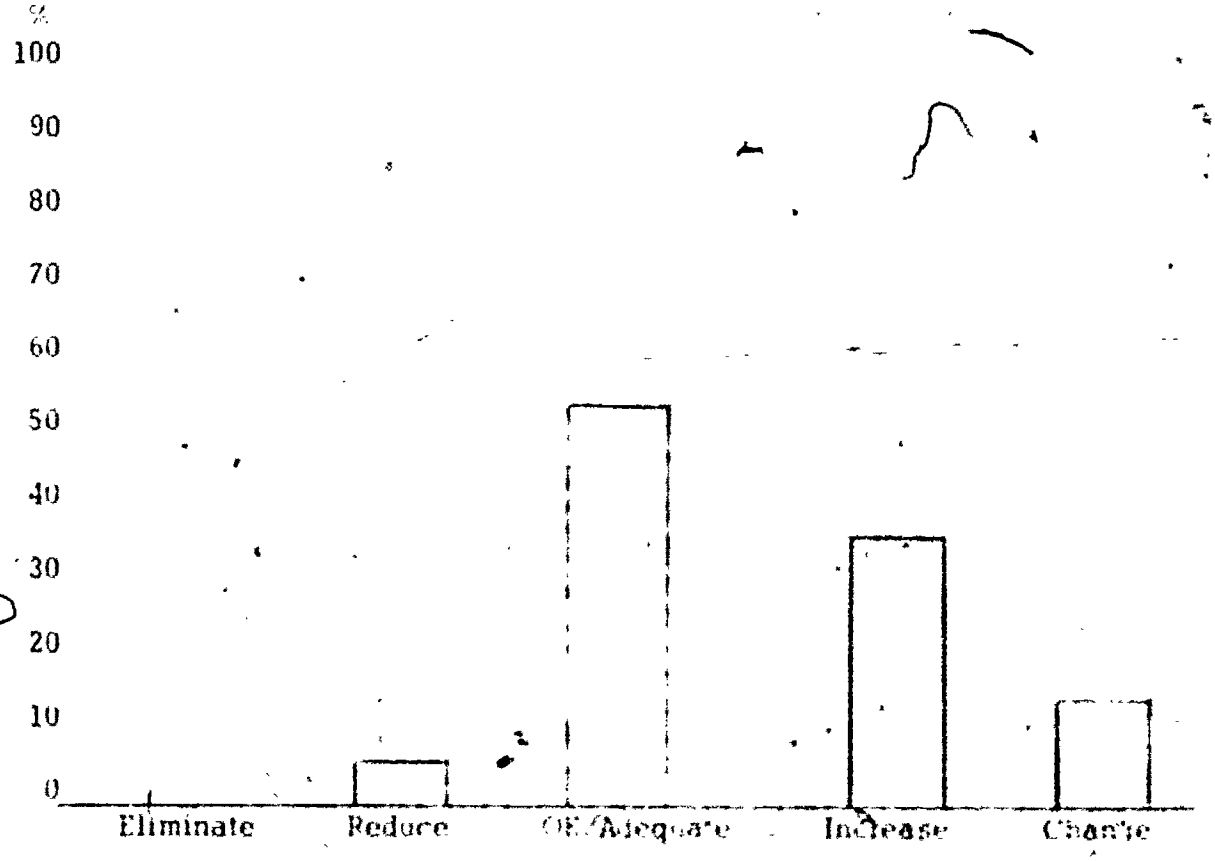
Change Comments:

1. "Little blueprint reading was offered."
2. "Should apply to trade."

TABLE LVII

APPLIED TECHNICAL DRAWING

	Number	Percentage
Eliminate	0	0.0
Reduce	1	3.4
OK/Adequate	15	51.8
Increase	10	34.4
Change	3	10.4
	29	100.0



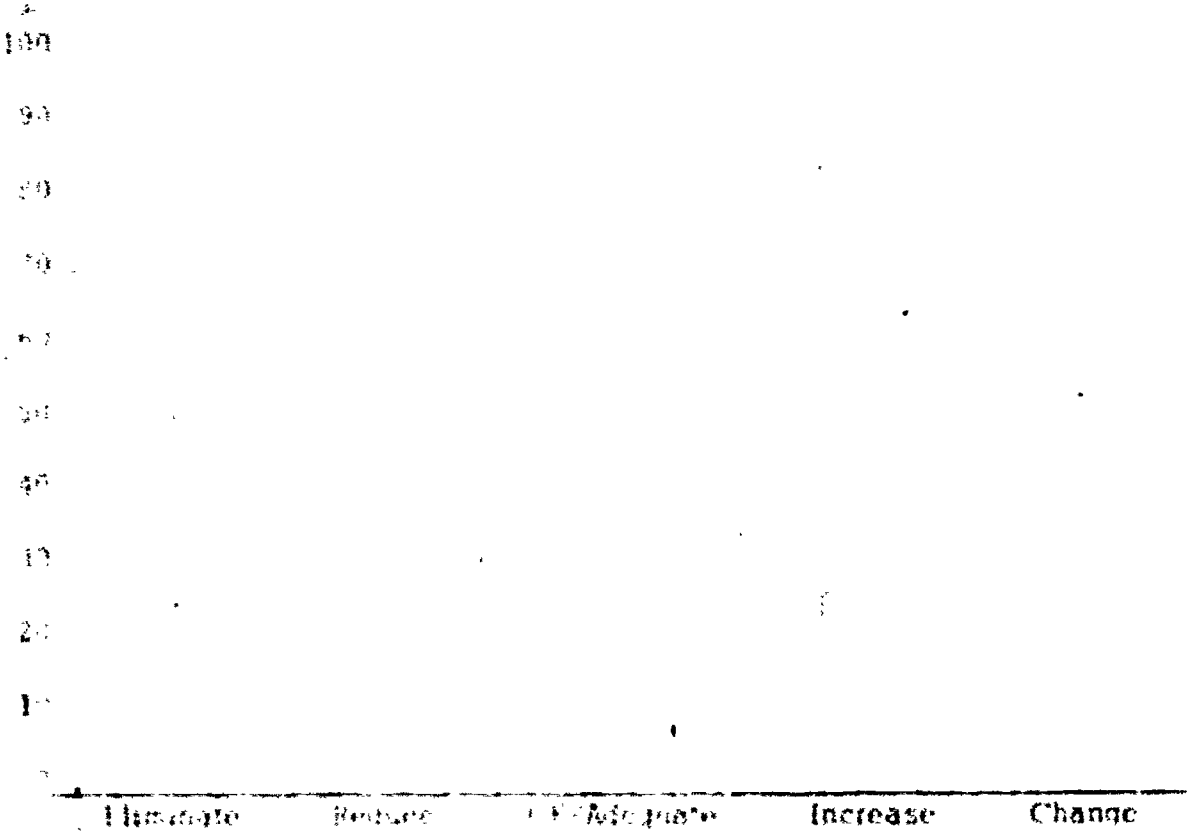
Change Comments:

1. "Less lecture - more individual help."
2. "Should apply to Machine Tool trade."

TABLE [illegible]

ADVANCED TECHNICAL DRAWING

	Number	Percentage
Eliminate	1	4.0
Reduce	0	0.0
OK/Adequate	16	64.0
Increase	7	28.0
Change	1	4.0
	25	100.0



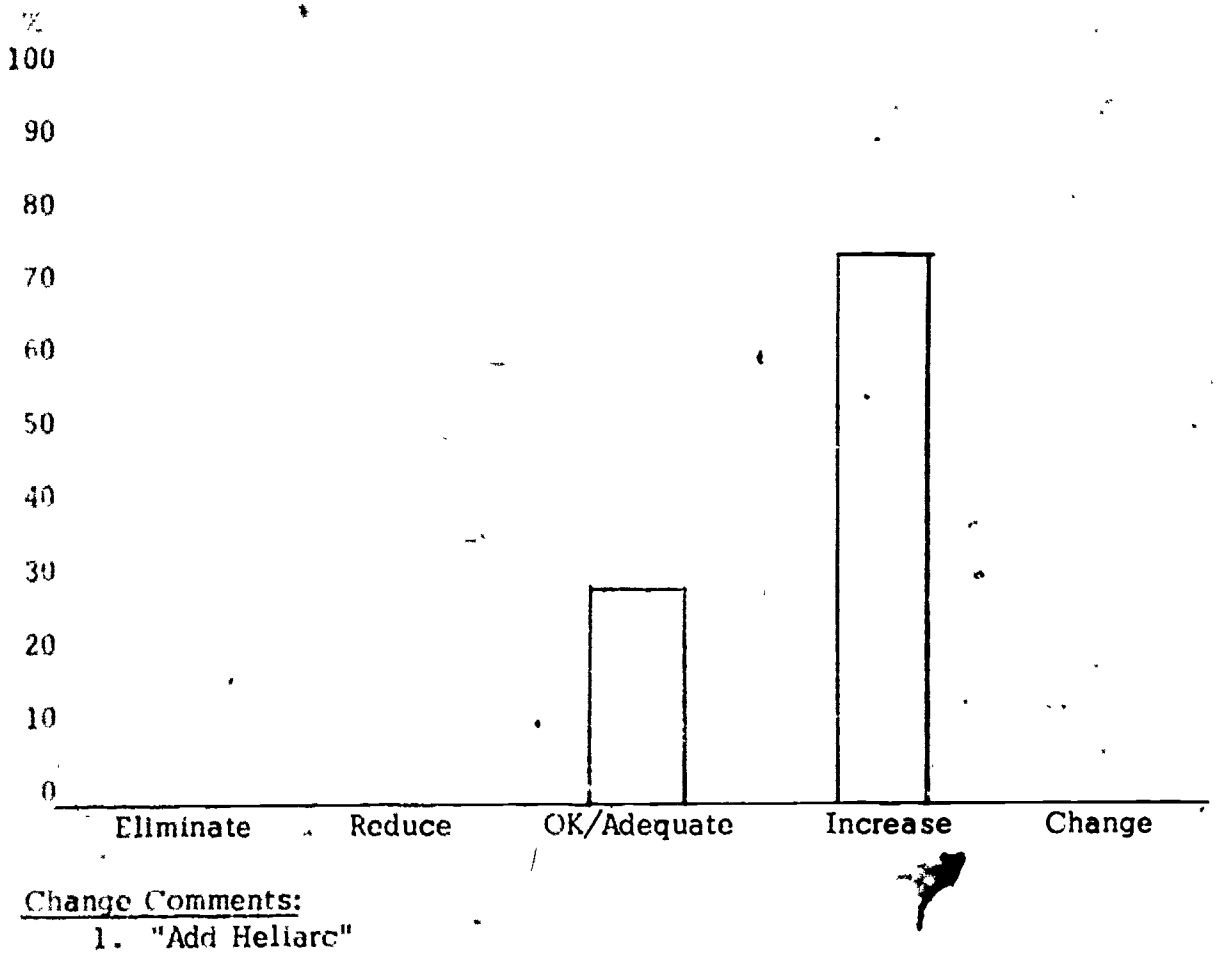
Change Comments:

1. "Less lecture - more individual help."
2. "[illegible] centered around machinist viewpoint better."

TABLE LIX

METALS FABRICATION I

	Number	Percentage
Eliminate	0	0.0
Reduce	0	0.0
OK/Adequate	8	28.6
Increase	20	71.4
Change	0	0.0
	28	100.0



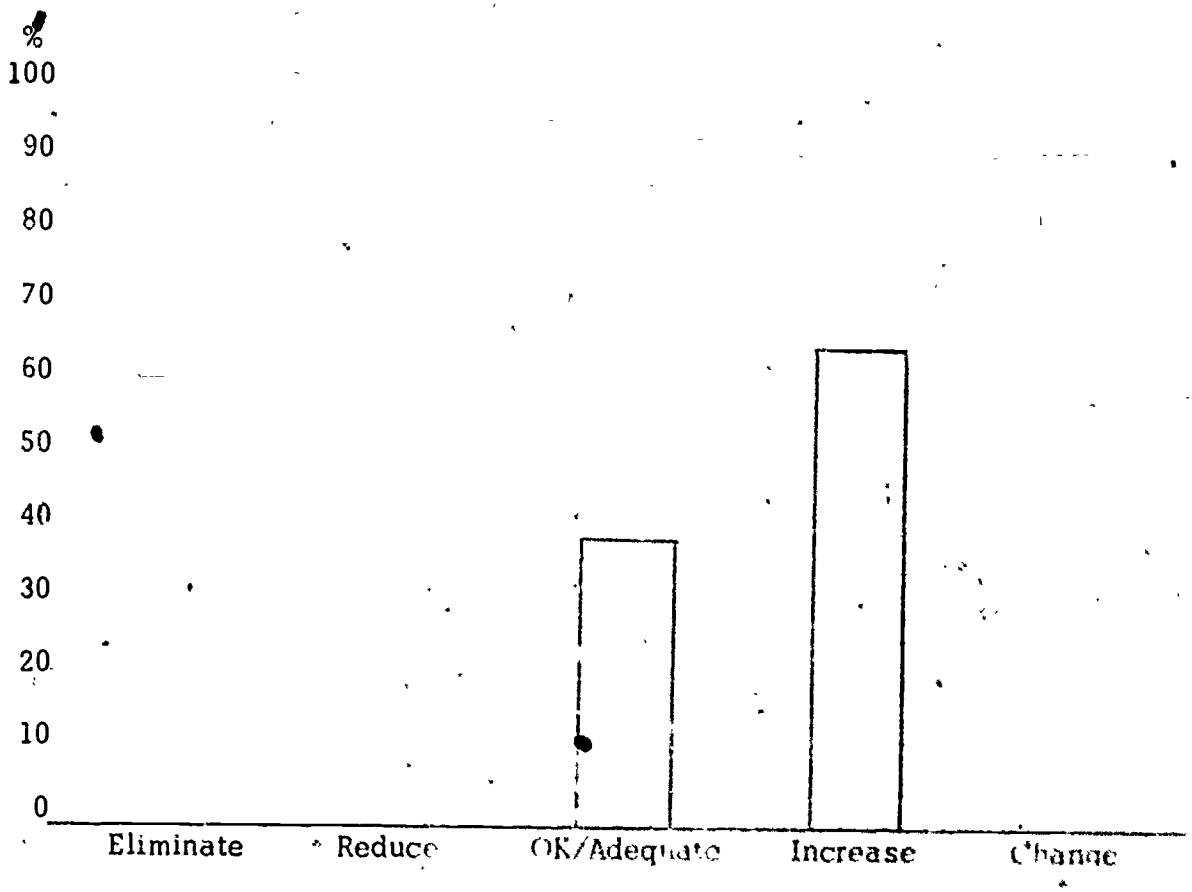
Change Comments:

1. "Add Heliarc"

TABLE LX

METALS FABRICATION II

	Number	Percentage
Eliminate	0	0.0
Reduce	0	0.0
OK/Adequate	10	37.0
Increase	17	63.0
Change	0	0.0
	27	100.0



Change Comments:

None

TABLE LXI

GENERAL PHYSICS I

	Number	Percentage
Eliminate	1	3.8
Reduce	6	21.4
OK/Adequate	17	60.6
Increase	2	7.1
Increase	2	7.1
	28	100.0

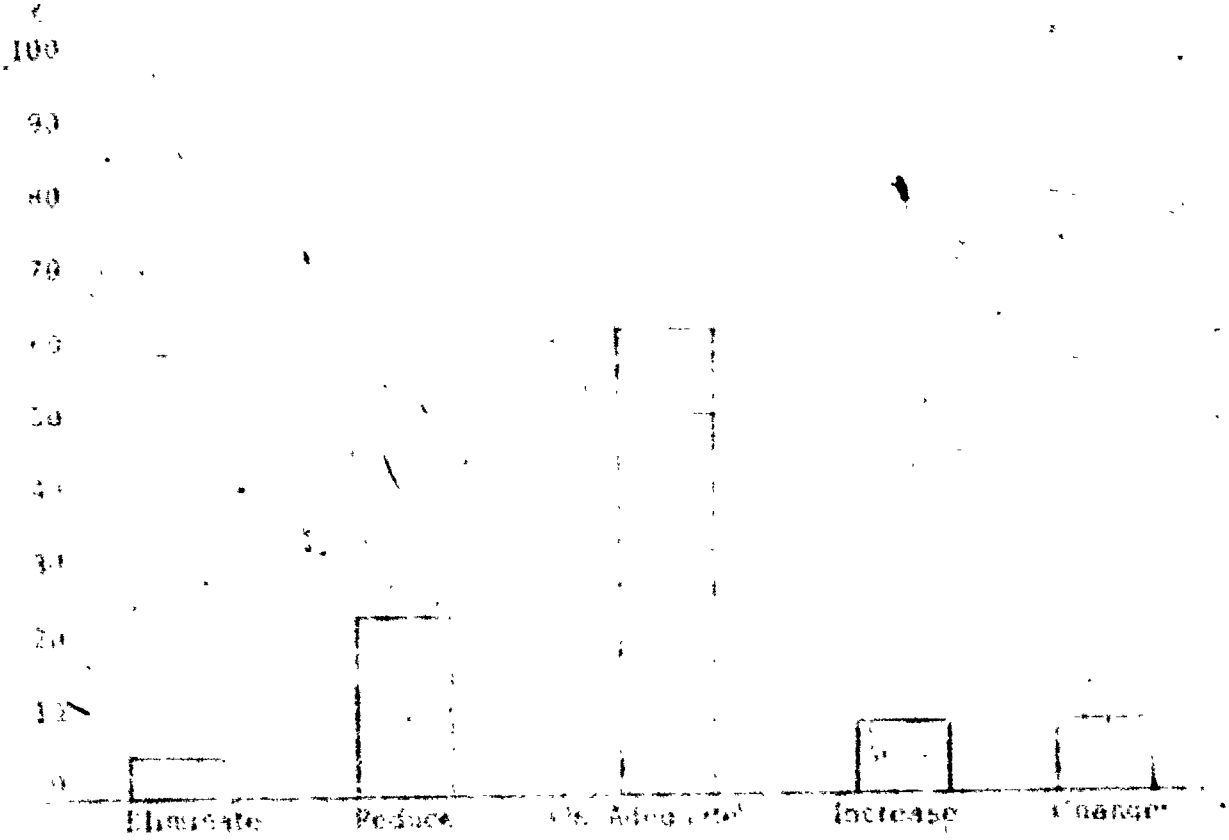
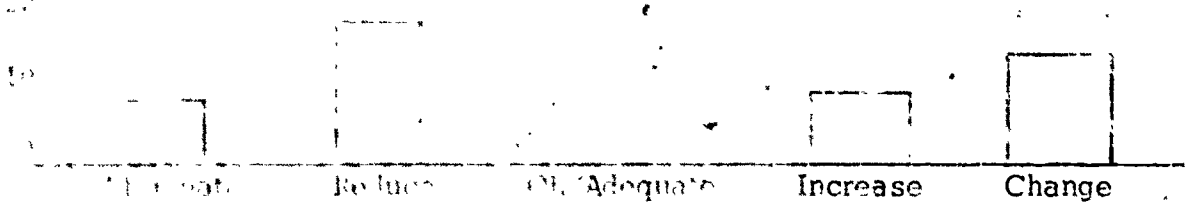


TABLE [illegible]

GENERAL PHYSICS II

	Number	Percentage
Eliminate	2	7.4
Reduce	5	18.5
OK/Adequate	15	55.5
Increase	2	7.4
Change	3	11.2
	27	100.0



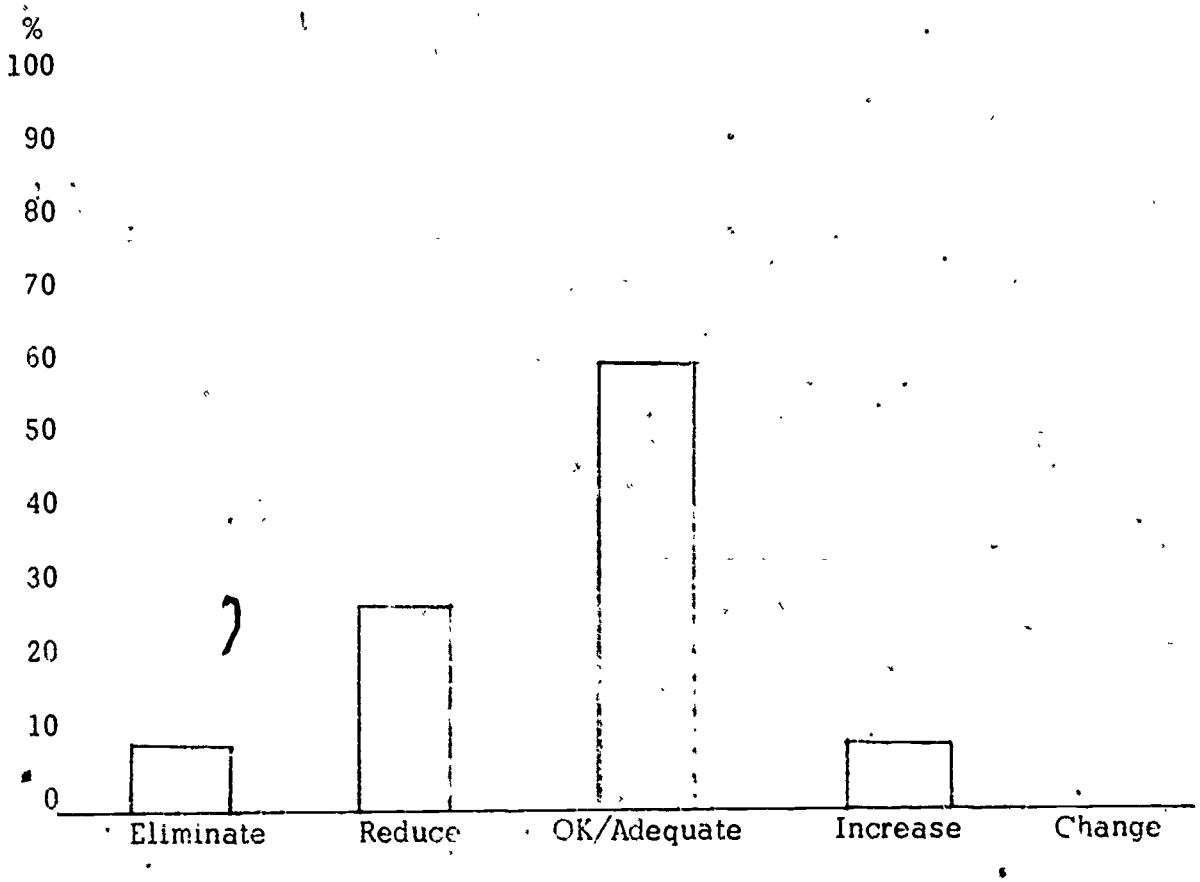
Comments:

1. "[illegible] course in high school. Should be required to get [illegible] Southern Maine Vocational Technical Institute."
2. "Should change to Electronics course."

TABLE LXIII

TECHNICAL PHYSICS

	Number	Percentage
Eliminate	2	8.0
Reduce	6	24.0
OK/Adequate	15	60.0
Increase	2	8.0
Change	0	0.0
	25	100.0



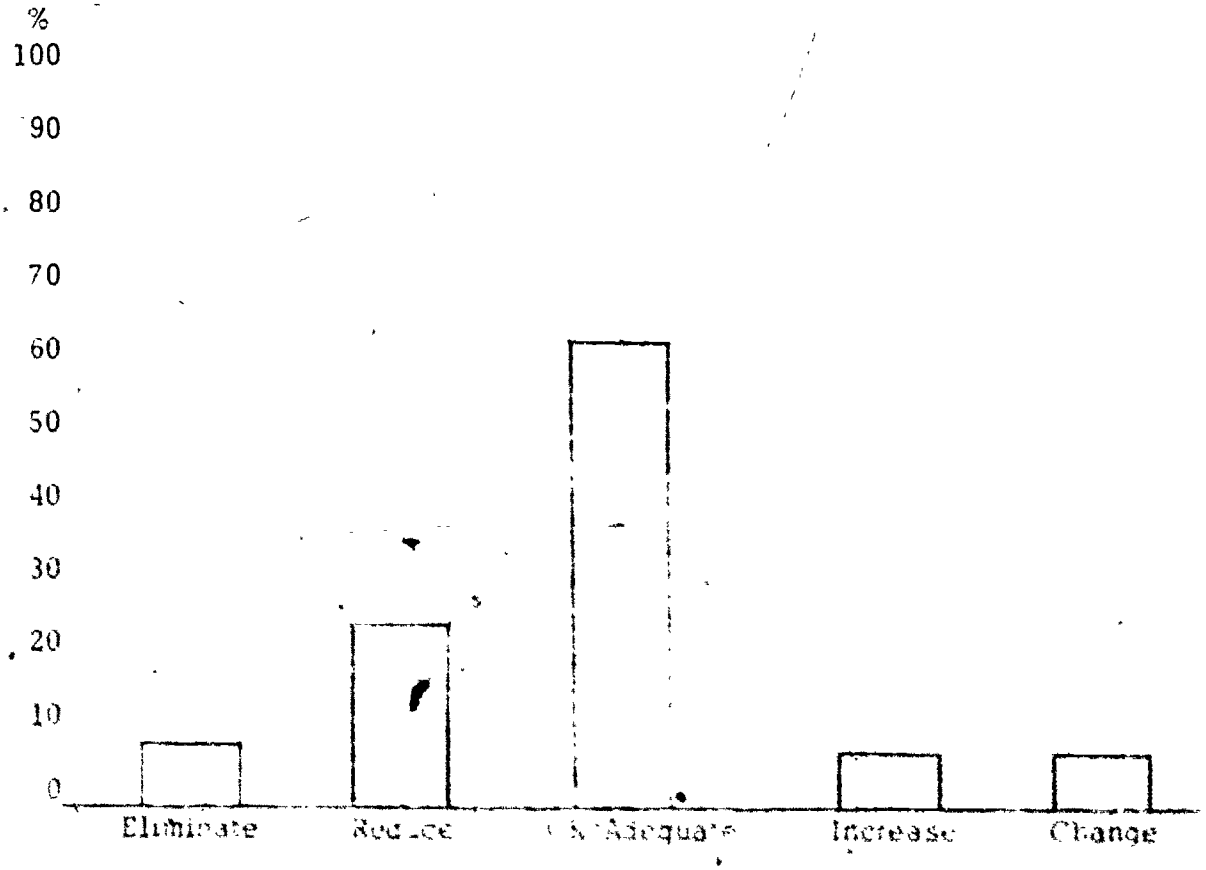
Change Comments:

1. "Should change to Electronics II course."

TABLE LXIV

TECHNICAL PHYSICS H

	Number	Percentage
Eliminate	2	8.7
Reduce	5	21.8
OK/Adequate	14	60.9
Increase	1	4.3
Change	1	4.3
	23	100.0

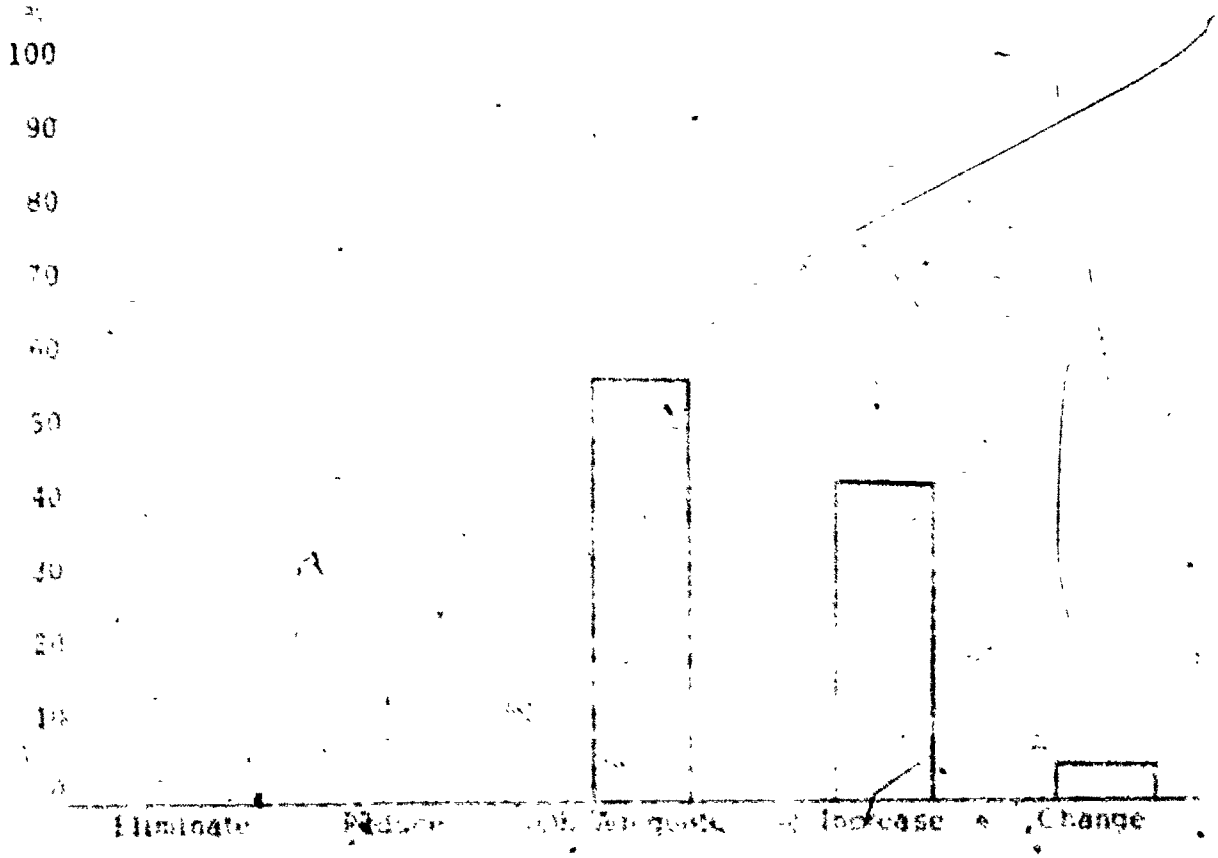


Change Comments:
None

TABLE LXV

STRENGTH OF MATERIALS

	Number	Percentage
Eliminate	0	0.0
Reduce	0	0.0
OK/Adequate	16	55.2
Increase	12	41.4
Change	1	3.4
	29	100.0



Change Comments:

1. "Use laboratory experiments"

TABLE LXVI

PHYSICAL EDUCATION

	Number	Percentage
Eliminate	1	4.2
Reduce	3	12.5
OK/Adequate	15	62.5
Increase	5	20.8
Change	0	0.0
	24	100.0

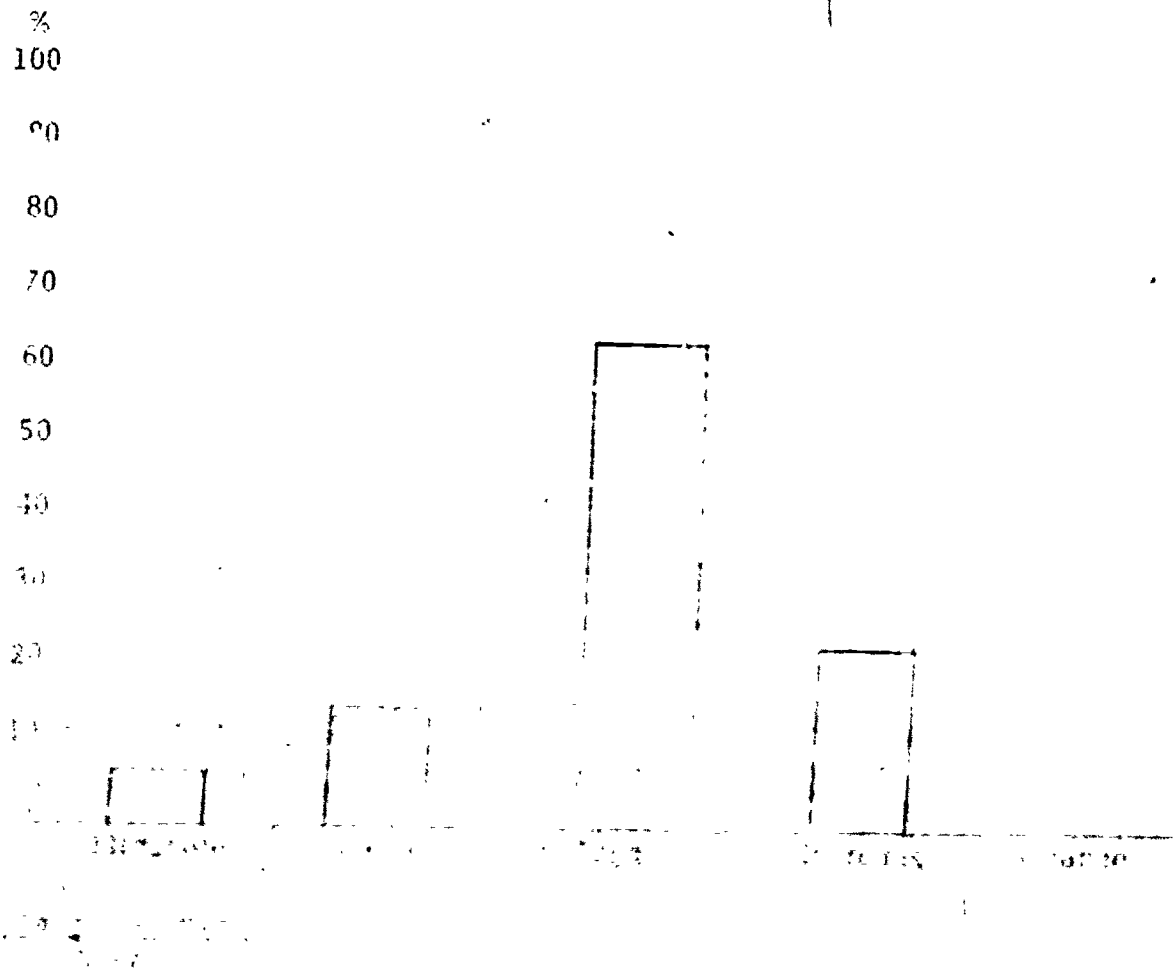
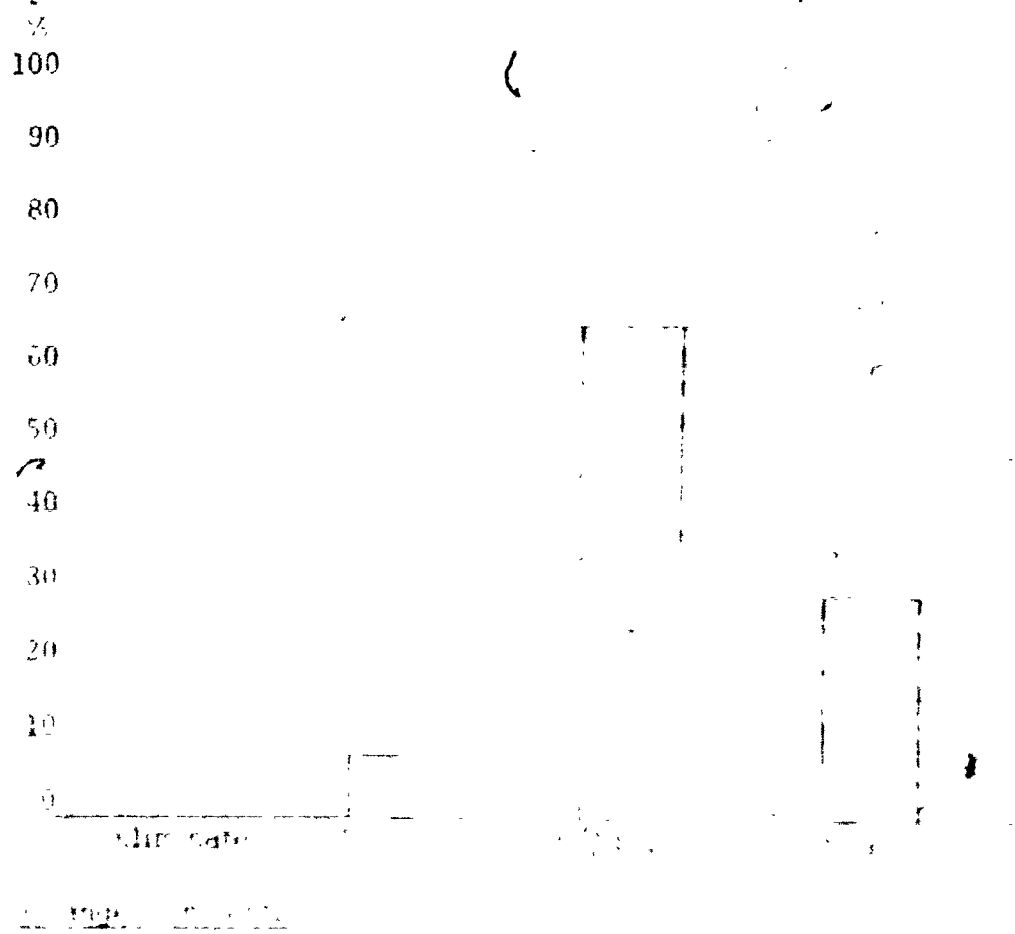
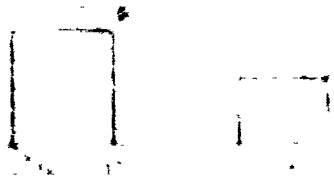


TABLE LXVII

BUSINESS MANAGEMENT I

	Number	Percentage
Eliminate	0	0.9
Reduce	2	7.4
OK/Adequate	17	63.0
Increase	8	29.6
Change	0	0.0
	27	100.0





	Number	Percentage
Eliminate	5	19.2
Reduce	1	3.8
Adequate	15	57.8
Increase	5	19.2
Change	0	0.0
	26	100.0

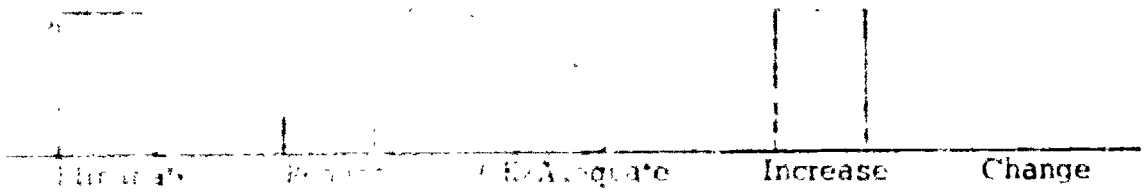
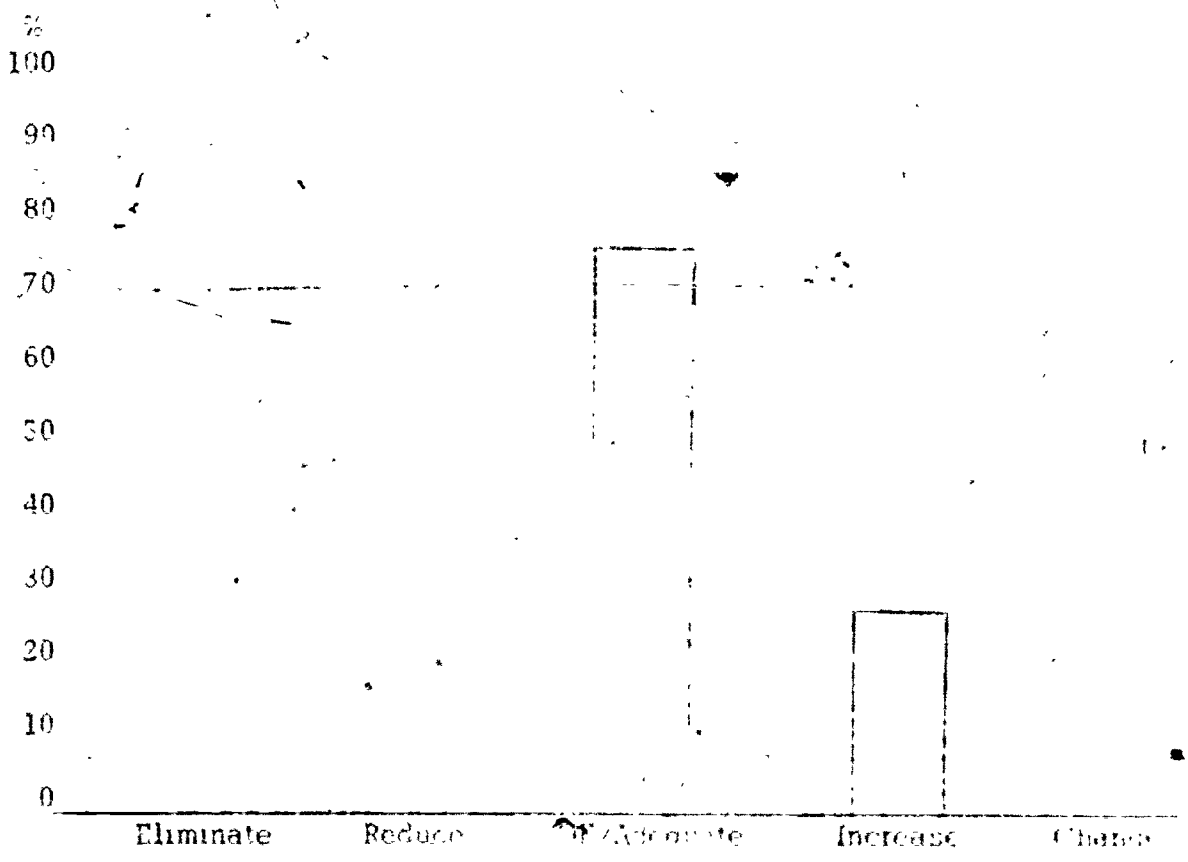


TABLE LXX

MACHINE TOOL TECHNOLOGY - MTT 111

	Number	Percentage
Eliminate	0	0.0
Reduce	0	0.0
OK/Adequate	21	75.0
Increase	7	25.0
Change	0	0.0
	28	100.0



Change Comments:
None

Table 13-1

MACHINE TOOL TECHNOLOGY - MIL 117

	Number	Percentage
Eliminate	0	0.0
Reduce	0	0.0
OK/Adequate	17	58.6
Increase	12	41.4
Change	0	0.0
	29	100.0

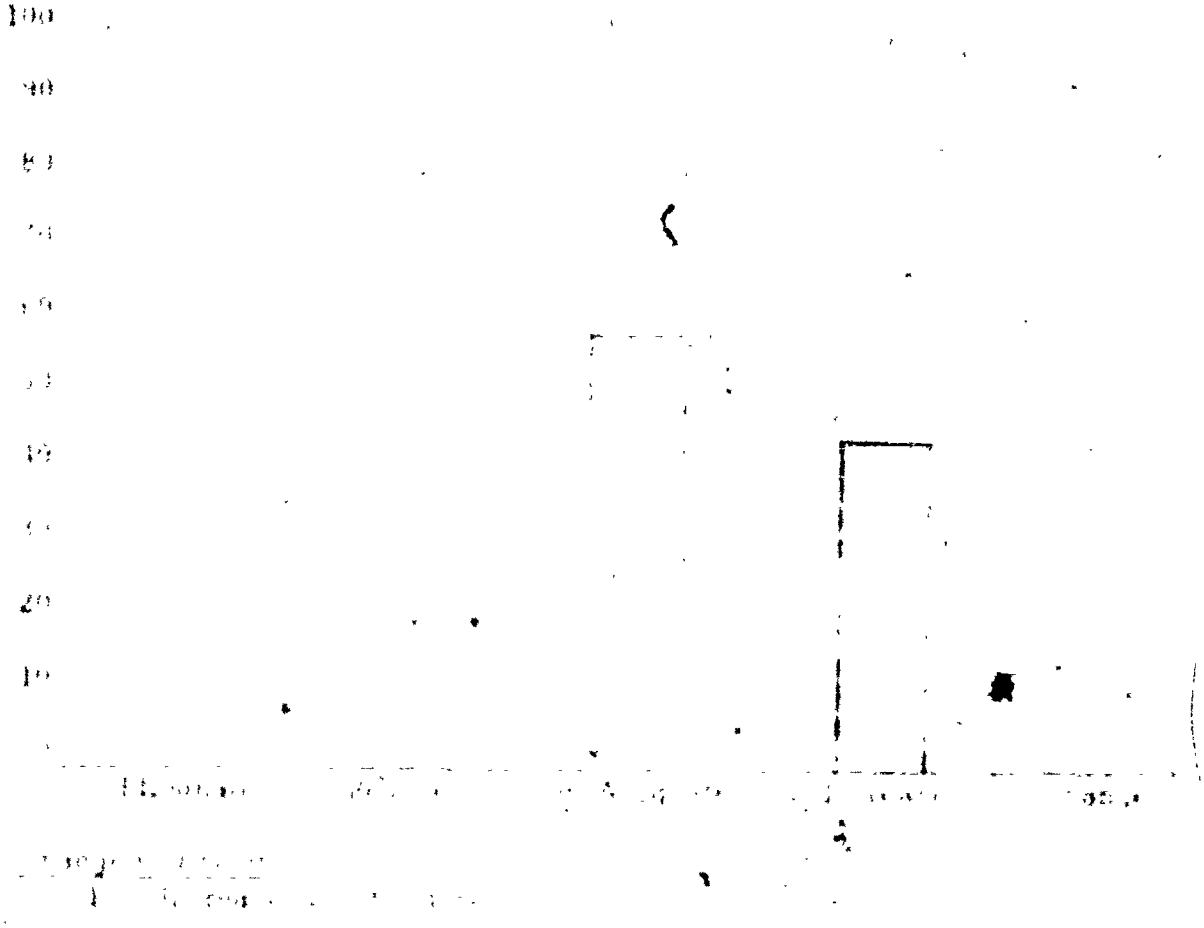


TABLE LXXII

MACHINE TOOL TECHNOLOGY - MTT 211

	Number	Percentage
Eliminate	0	0.0
Reduce	2	7.4
OK/Adequate	19	70.4
Increase	6	22.2
Change	0	0.0
	27	100.0

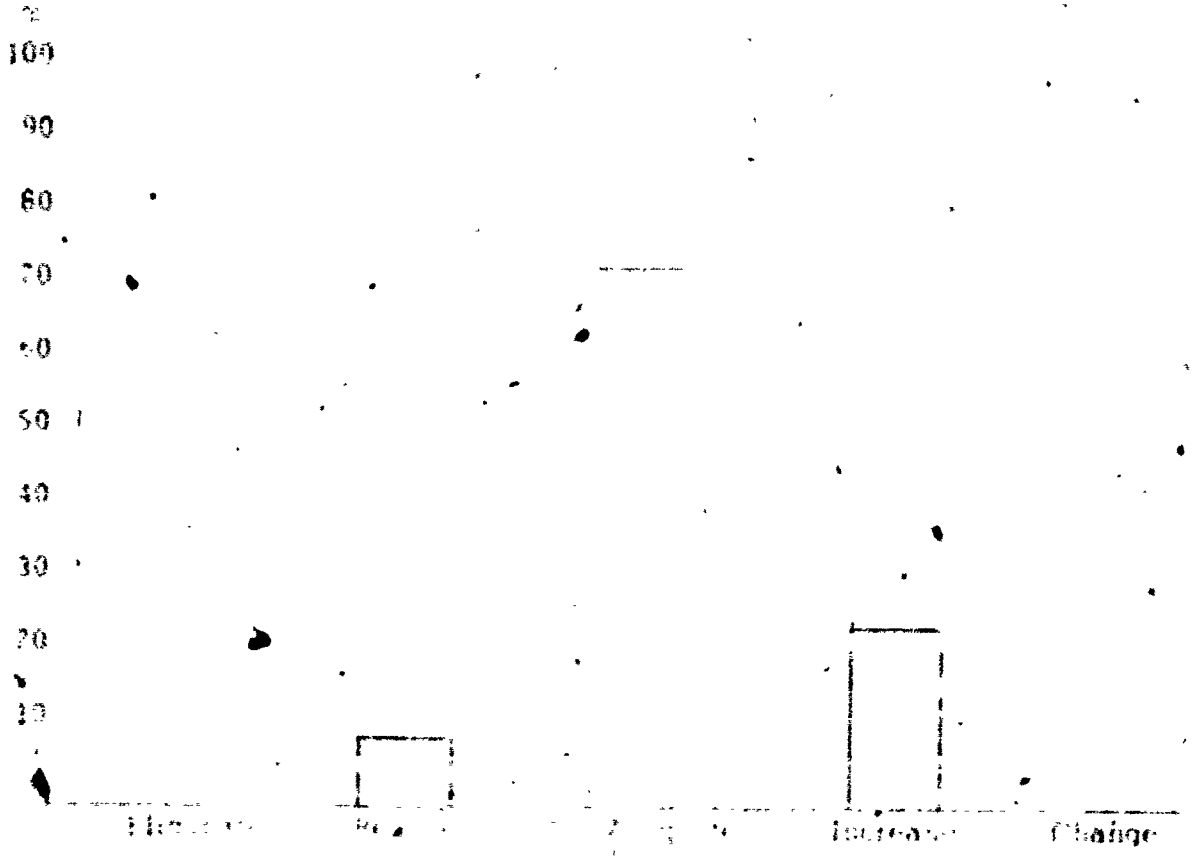
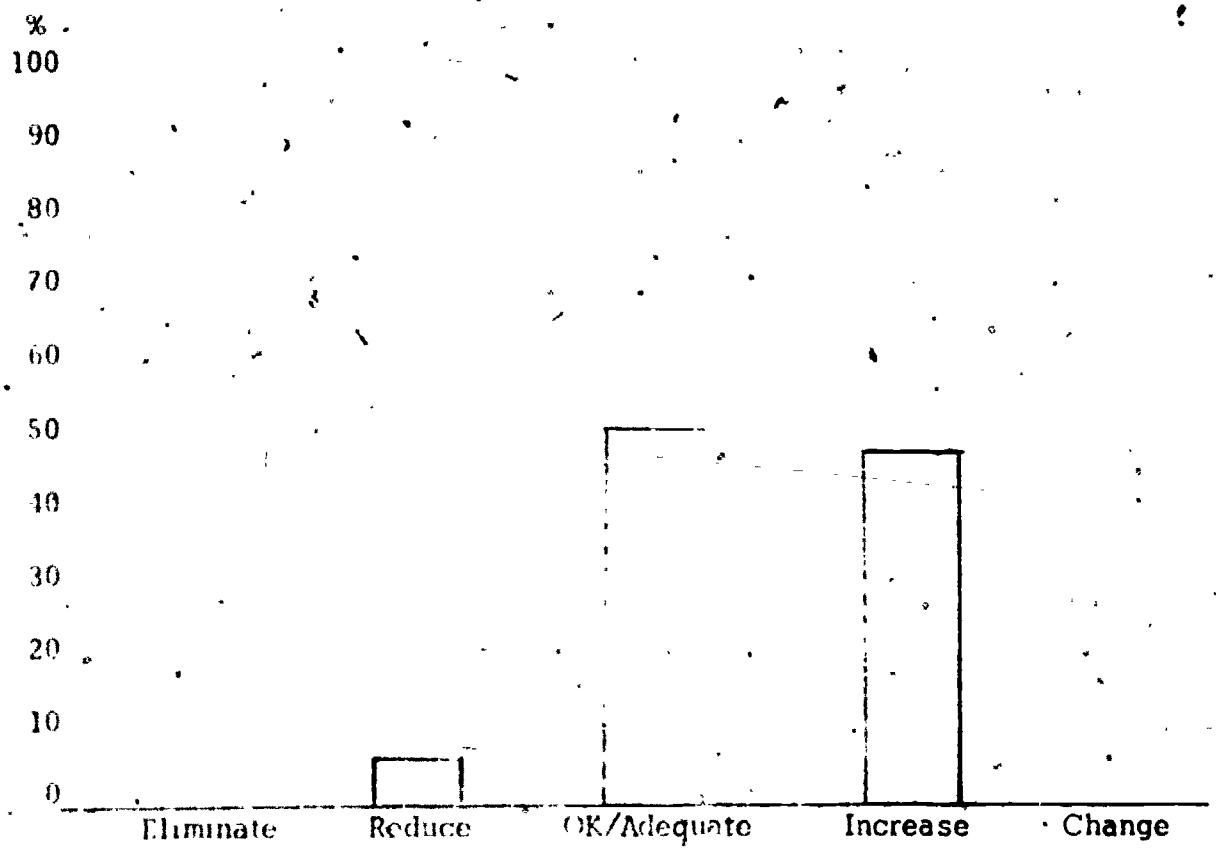


TABLE LXXIII

MACHINE TOOL TECHNOLOGY - MTT 212

	Number	Percentage
Eliminate	0	0.0
Reduce	1	3.6
OK/Adequate	14	50.0
Increase	13	46.4
Change	0	0.0
	28	100.0



Change Comments:

1. "Increase very much"
2. "Reduce time spent on tool and die design."
3. "Hydraulics and Numerical Control are the coming things."

VI INVESTIGATOR AND EMPLOYER REACTIONS

Investigators found graduates and employers receptive to visitations. Employers were most helpful in assessing employees, and providing time for the investigator and graduate indepth interviews.

Graduates interviewed in both Building Construction and Machine Tool Technology were gainfully employed and working in the fields for which they were trained, or in one closely related to it. Investigators did discern an interest in returning to school in order to keep up-to-date in their field, and this position was supported by employers.

Impressions of both investigators, and reinforced by employers, was the need for continual attention to course content, and to maintain relevancy to the actual trade, or occupational area. Numerous comments were made by graduates indicating concern in this area, and the fear that courses in the trade areas were departing from their original intent - relevant occupational preparation. Most indicated that the first year courses were satisfactory, while second year courses were in need of revision. This fact is also apparent in Section V - Curriculum Evaluations.

As a phase of relevancy, a number of employers and students indicated that instructors should attempt to keep themselves up-to-date in their trade areas. Trade areas were identified as very competitive, and that newer methods and techniques were being introduced, necessitating continual program review and up-dating.

Most comments regarding the programs were reflective of the present position held by the graduate and their employment requirements.

The cross section of graduates interviewed represented a wide variety of jobs and job requirements. Graduates appeared to be happy and satisfied with their role and position, at least for the present.

VII SUMMARY OF FINDINGS

The data gathered within the limitations of this study seems to support the following conclusions concerning the graduates of the Building Construction and Machine Tool Technology programs at the Southern Maine Vocational-Technical Institute.

1. A majority of graduates who responded to the follow-up study were diploma graduates.

2. All individuals responding were currently employed with a majority from both curriculum areas working in the trade area for which they were prepared, or one closely related to it. 78.2% in Machine Tool Technology and 87.9% in Building Construction.

3. 38.6% of the Building Construction graduates and 65.7% of the Machine Tool Technology graduates had pursued additional training or education since graduation from the Southern Maine Vocational-Technical Institute.

4. The majority of graduates have held one job since graduation.

5. 87.9% of the Building Construction graduates and 78.2% of the Machine Tool Technology graduates held jobs related to their training.

6. A majority of graduates rated their education curriculum as very good or excellent, while 28.3 rated the programs as adequate.

7. 73.9% of the Machine Tool Technology graduates and 73.2% of those in Building Construction found it easy to adapt to industrial equipment. Small percentages had some difficulty, while there were none that found it difficult to adapt.

8. A majority of respondents felt that the equipment in use at the Vocational Technical Institute was similar to that used on the job. A small percentage - 27.3 - felt the equipment was superior, and 9% indicated that it was inferior to that found on the job.

9. Respondents indicated general satisfaction with quality of instruction. 93.3% of the Building Construction graduates, and 96.1% of those in Machine Tool Technology rated instruction as very well.

10. Instructors were rated as very knowledgeable by 90.2% of the Building Construction graduates and 93.1% of those in Machine Tool Technology.

11. Instructors interest in student work and progress was noted as being well above average with greater interest shown by Machine Tool instructors.

12. 79.6% of the Building Construction graduates and 79.3% of those in Machine Tool Technology rated their instructors as up-to-date.

13. 93.3% of the graduates of the Building Construction program, and 74.1% of those in Machine Tool Technology would select the same curriculum area if they started over again.

14. Assistance in obtaining a first job was provided from a number of sources with instructors providing services to 25-30% of the graduates.

15. A large majority of graduates did not avail themselves of school and community services. Of those Building Construction graduates who responded, most rated the services as good, some excellent, and a few in the poor category. The Machine Tool Technology graduates were much more critical of the services provided. Although many indicated they were good, a larger number checked the poor category, with fewer responses as excellent.

16. Students were generally satisfied with their curriculums, however many specific recommendations were provided for consideration.

17. A majority of participants are desirous of up-grading, retraining and continuing education.

18. Fourteen of the twenty-four courses identified as the Building Construction program were rated as OK-Adequate. Elimination, or reductions were recommended for American Literature and General Physics I and II, while increases were recommended for Business Management I, Blueprint Reading and Sketching, Architectural Drafting, Surveying and Building Construction-BC212. 62 specific changes were noted for 19 courses.

19. Twenty-three courses offered in the Machine Tool Technology program were rated as OK/Adequate. Elimination, or reduction was recommended for American Literature, while increases were recommended for Metal Fabrication I and II and Machine Tool Technology 212. 20 specific changes were noted for 14 courses.

20. Investigators found employees and employers generally satisfied with program graduates. Concern was noted with continued program relevancy to the trade of occupational areas.

VIII RECOMMENDATIONS

Recommendations which appear pertinent related to the findings and data:

1. Instructors should review the changes noted under specific courses for their curricula implications.

2. Changes recommended for programs as related to content should be reviewed with implications for course revision and/or creation of new course offerings.

3. Areas of interest expressed under up-grading, retraining and continuing education should be reviewed for possible implications for current curricula offerings.

4. Areas of interest expressed under up-grading, retraining and continuing education should be reviewed for potential course offerings in the Adult, or Continuing Education program.

5. Procedures should be established to assure course relevancy.

6. An attempt should be made to locate those graduates who did not respond to the study in order to ascertain their current employment and sentiments regarding courses and program pursued. This information should assist in determining the validity of responses revealed in this study.

7. If another study is to be conducted, shorten the survey instrument, and make [illegible] and printing cannot be mistaken for "dumb" mail.

APPENDIX

A. LETTERS TO GRADUATES

B. FOLLOW-UP QUESTIONNAIRE

C. BUILDING CONSTRUCTION CURRICULUM
Evaluation Check List

D. MACHINE TOOL TECHNOLOGY CURRICULUM
Evaluation Check List

E. GRADUATE DIRECTORY
1. Building Construction
2. Machine Tool Technology

Southern Maine Vocational Technical Institute

FORT ROAD • SOUTH PORTLAND MAINE 04106 • TELEPHONE 799-7303

WILLIAM C. WARREN
DEAN OF INSTRUCTION

Dear SMVTI Alumnus:

We are currently conducting a follow-up study of past graduates of the Building Construction and Machine Tool Technology programs.

We are soliciting your assistance in determining relevancy of our programs to employment needs. Please complete the enclosed opinionnaire and return in the enclosed envelope.

Your responses will be kept confidential and only summaries will be published. Therefore, please be honest.

Thank you for your assistance with the project.

Sincerely,

William C. Warren
Dean of Instruction

WCW:lc

Southern Maine Vocational Technical Institute

FORT ROAD • SOUTH PORTLAND, MAINE 04106 • TELEPHONE 799 7303

WILLIAM C. WARREN
DEAN OF INSTRUCTION

Dear SMVTI Alumnus:

We are currently conducting a follow-up study of past graduates of the Building Construction and Machine Tool Technology programs.

We are soliciting your assistance in determining the relevancy of our programs to employment needs. Please complete the enclosed opinionnaire and return. In the near future, Mr. Rodney Gray, instructor in Building Construction, will call on you, answer any questions you may have, and collect the opinionnaire.

Your responses will be kept confidential and only summaries will be published. Therefore, please be honest.

Thank you for your cooperation in this project.

W.W:le

Southern Maine Vocational Technical Institute

FORT ROAD • SOUTH PORTLAND, MAINE 04106 • TELEPHONE 799-7303

WILLIAM C. WARREN
DEAN OF INSTRUCTION

Dear SMVTI Alumnus:

We are currently conducting a follow-up study of past graduates of the Building Construction and Machine Tool Technology programs.

We are soliciting your assistance in determining the relevancy of our programs to employment needs. Please complete the enclosed opinionnaire and return. In the near future, Mr. Wilbur Hall, instructor in Machine Tool Technology, will call on you, answer any questions you may have, and collect the opinionnaire.

Your responses will be kept confidential and only summaries will be published. Therefore, please be honest.

Thank you for your assistance with the project.

Sincerely,

William C. Warren
Dean of Instruction

WCW:lc

Southern Maine Vocational Technical Institute

FORT ROAD • SOUTH PORTLAND MAINE 04106 • TELEPHONE 799-7303

- FOLLOW - UP - STUDY -

(Check One)

	Associate	Diploma
Building Construction		
Machine Tool Technology		

Year Graduated _____

I. PERSONAL INFORMATION

A. Name _____

B. Social Security Number _____

C. Street Address _____

_____
Town County State Zip

D. Home Town While Attending SMVTI:

_____
Town County State Zip

II. ADDITIONAL TRAINING

A. Since graduating, what further educational training have you taken part in? (You may check more than one)

___ None

___ On-the-job training (employer-sponsored training program)

___ Vocational school programs

___ University, college and/or junior college programs

___ Apprenticeship

___ Other _____ (specify)

B. Major field of study (if continuing education) _____

C. Number of years or months _____

III. EMPLOYMENT INFORMATION - Present Status

A. Are you presently employed, unemployed or unavailable for employment? (Check only one of employed, unemployed, or unavailable for employment)

___ Employed

___ Unemployed (you are actively looking for a job but cannot find one)

___ Unavailable for employment (you cannot accept a job for one of the following reasons. Please check appropriate reason.)

___ Further training or education

___ Illness

___ Housewife or pregnancy

___ Presently not working and not interested in employment

___ Other _____ (specify)

Follow-Up Study - 2

IV. JOB INFORMATION - Include Armed Forces
(Supply information on all jobs held since graduation)

A. First Job

Firm name_____

Firm address_____

City_____

State_____ Zip Code_____

Approximate number of employees in company_____

Job title_____

Job duties_____

_____

_____

Immediate supervisor_____

Check One:

___ Full-time job
___ Part-time job

Check One:

___ Job related to vocational training
___ Job not related to vocational training

Number of months in this job since graduation

_____

B. Second Job

Firm name_____

Firm address_____

City_____

State_____ Zip Code_____

Approximate number of employees in company_____

Job title_____

Job duties_____

_____

_____

Immediate supervisor_____

Check One:

___ Full-time job
___ Part-time job

Check One:

___ Job related to vocational training
___ Job not related to vocational training

Number of months in this job since graduation

_____

C. Present Job (job you are presently employed in. If same as first job, write 'same.')

Firm name_____

Firm address_____

City_____

State_____ Zip Code_____

Approximate number of employees in company_____

Job title_____

Job duties_____

_____

_____

Immediate supervisor_____

Check One:

___ Full-time job
___ Part-time job

Check One:

___ Job related to vocational training
___ Job not related to vocational training

Number of months in this job since graduation

_____

Follow-Up Study - 3

D. If you are not employed in area for which you were trained, please indicate why:

_____

_____

_____

_____

_____

O P I N I O N N A I R E

Directions: Please answer all the following questions concerning the quality of the curriculum and the quality of the facilities and equipment associated with the program from which you graduated. Place an "X" in the appropriate space.

V. CURRICULUM

A. In light of your experience on the job, how do you feel about the skill training you received in your vocational-technical program?

___Excellent ___Very good ___Adequate ___Inadequate ___Does not apply

VI. FACILITIES AND EQUIPMENT

A. The equipment in my vocational-technical program was such that:

___ I found it very easy to adapt to the equipment on the job.
___ I had some problems adapting to the equipment on the job.
___ I found it very difficult to adapt to the equipment on the job.
___ Does not apply.

B. In comparison to the facilities and equipment used on your present job, how would you rate your vocational-technical program equipment?

___ The vocational-technical equipment was superior to that on the job.
___ The vocational-technical equipment was similar to that on the job.
___ The vocational-technical equipment was inferior to that on the job.

VII. INSTRUCTION

A. How would you rate the teaching quality of the instructors in your vocational training program?

___ The instructors taught very well.
___ About the same as other instructors.
___ The instructors did not teach well.

B. How would you rate the knowledge your vocational instructors possessed about their field?

___ Instructors were very knowledgeable.
___ About the same as other instructors.
___ Instructors were not knowledgeable.

C. How would you rate the interest shown by your instructors in your work progress in your vocational program?

___ Instructors were very interested in my progress.
___ Instructors were somewhat interested in my progress.
___ Instructors were not interested in my progress.

Follow-Up Study - 4.

VII. INSTRUCTION (Continued)

D. How would you rate the extent to which your instructors in your vocational program were up-to-date in their field?

___ Instructors were up-to-date.
___ About the same as other instructors.
___ Instructors were not up-to-date.

VIII. If you could start all over again, would you choose the same vocational training program? ___Yes ___No

Comment:

IX. SCHOOL AND COMMUNITY SERVICES

A. How would you rate the interest shown by your vocational instructors in your work and progress after graduation?

___ Very interested in progress
___ Somewhat interested in progress
___ Not interested in progress

B. Who was the greatest help to you in securing your first job? (Check one)

___ Instructor, or other vocational-technical personnel
___ Private employment agency
___ Relatives or friends
___ State employment agency
___ Other _____ (specify)
___ Does not apply (I have not been employed during the year)

C. How would you rate the quality of the following services as provided by your vocational instructors? If you did not take advantage of the service, or if the service was not available, check "does not apply." (Please check only one space for each item.)

	Excellent	Good	Poor	Does not apply
1. Job placement.	___	___	___	___
2. Counseling with personal problems. . . .	___	___	___	___
3. Help in making career decisions.	___	___	___	___
4. Help in securing part-time employment. .	___	___	___	___
5. Help in obtaining financial assistance .	___	___	___	___
6. Youth organizations.	___	___	___	___
7. Recreational programs.	___	___	___	___
8. Study, library and other learning resource facilities	___	___	___	___

Follow-Up Study - 5

X. RECOMMENDATIONS

A. What changes would you recommend for the Building Construction or Machine Tool Technology programs? ____

XI. UPGRADING, RETRAINING, CONTINUING EDUCATION

A. Are you interested in participating in:

___ 1. Upgrading courses to reinforce/support your employment.
___ 2. Retraining courses reflecting newer techniques, newer processes, or related occupational developments.
___ 3. Continuing education of a more general nature to allow for promotion and career advancement.
___ 4. No interest.

B. What type of course offering would you like to see offered if you answered 1, 2, or 3 above?

BUILDING CONSTRUCTION

CURRICULUM EVALUATION

In the light of your experience on the job, how do you feel about the training you received at SMVTI?

DIRECTIONS: Below are descriptions of courses offered in Building Construction. For those you pursued, evaluate by checking the appropriate box at the right of each question.

Key: Eliminate------Do away with the requirement for all Building Construction students to satisfactorily complete the course.

Reduce---------Lower the amount of time devoted to the course.

OK-adequate----Appears to be appropriate.

Increase-------Increase the amount of time devoted to the course.

Change---------Inappropriate to program; changes should be made. Please indicate changes in space provided.

COMMUNICATIONS I - Review of the fundamentals of grammar; correction of common errors, spelling and usage, especially of technical terms; punctuation, sentence structure, paragraph structure; factors of unity, coherence and emphasis in composition; technique of writing clear, concise, accurate and effective business communications. 3 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

COMMUNICATIONS II - Emphasis on improving the student's ability to read and comprehend material of various levels of complexity. Special techniques of technical report writing are presented, including the use of definitions descriptions, classifications and interpretation. Attention is directed to the various attributes of the report, such as clarity, conciseness and completeness. 3 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

ENGLISH COMPOSITION - Review of grammar, sentence structure, paragraph structure and composition with emphasis on unity, coherence and conciseness; the technique of writing accurate and effective business communications. Intensive work in the area of technical report writing will include the use of definitions, descriptions, classifications and interpretation. The student will read various types of material, including essays and short stories, at different levels of complexity with emphasis on comprehension. 3 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

AMERICAN LITERATURE - A study of American Literature enabling the student to read short stories critically, to examine American novels based on a study of the elements of scale, thematic motifs, positions of emphasis, intention and interpretation, structure and the final synthesis. 3 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

...llowing Construction - 2

...LLEGE ALGEBRA AND TRIGONOMETRY - Fundamental operations; linear and fractional equations; exponents and radicals; algebraic and trigonometric functions; determinants, higher-degree equations; logarithms; right and oblique triangles and selected topics. 4 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

...THEMATICS I - Introduction to the fundamentals of arithmetic, algebra, geometry and trigonometry. 4 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

...THEMATICS II - Algebra: special products and factoring, through quadratic equations. Logarithms: introduction, computation by logs, application of logarithms. Trigonometry: functions of angles of any size, through the solving of oblique triangles. 3 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

...UEPRINT READING AND SKETCHING - This is a course in sketching and the reading of architectural working drawings, built on basic principles which are intimately related to the trade interests of the students. 2 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

...TRODUCTORY ARCHITECTURAL DRAFTING - Introduction of fundamentals of drafting; including plans, elevations, sectioning, dimensioning, and architectural representation. Early exercises will provide for experience in linework, lettering, geometric relationships, measuring and orthographic projection principles. 3 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

...CHITECTURAL DRAFTING - In this course, the student will design an edifice to fit a particular lot of ground and develop a complete set of working drawings and specifications necessary for its construction. Each project is intended to increase the student's ability to gather pertinent controlling data, to apply the principles learned in earlier architectural drawing courses and to further develop a professional attitude. 3 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

...NERAL PHYSICS I - A study of the basic physical principles of the universe in the area of mechanics; covering measurements, forces, vector composition and resolution, equilibrium, kinetics, dynamics, work, energy, power and rotary motion, with applications in solving technical problems. Related weekly laboratory experiments. 4 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

...ERAL PHYSICS II - A study of the basic principles of the universe in the areas of heat, electricity, sound and light, with applications used in solving technical problems. Related weekly laboratory experiments. 4 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

Building Construction - 3

TECHNICAL PHYSICS I - A non-calculus approach to the analysis of basic relationships in mechanics, with emphasis on applying an understanding of these in solving technical problems. Weekly related experiments. 4 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

TECHNICAL PHYSICS II - A non-calculus approach to the analysis of the basic relationships in heat, sound, electricity and light, with emphasis on applying an understanding of these in solving technical problems. Weekly related experiments. 4 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

STRENGTH OF MATERIALS - A basic non-calculus analysis of stress and strain as related to connections, beams, columns, consideration of torsion and other applications. 3 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

SURVEYING - Introduction to a working knowledge of surveying; use of transit, dumpy level, tapes and allied equipment. Emphasized procedures include benchmark leveling, profile leveling, traverses and grade staking. 3 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

PHYSICAL EDUCATION - This course is a recreation oriented program that offers students a wide variety of activities that can be used during leisure time as well as providing the opportunity to achieve at a level of physical endurance that enables the student to enjoy fitness and health. 1 credit hour.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

BUSINESS MANAGEMENT I - Orientation in the economics of the American business system. Course places emphasis on the following factors relating to business: nature, environment, ownership, management, organization, marketing and operational factors. 3 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

ECONOMICS - This is a survey of economic issues and institutions as they are related to social needs. This course examines the practices and procedures for providing for human satisfaction from a limited resource base. 3 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

HUMAN RELATIONS - Designed to help the students develop an awareness of psychological principles, attitudes toward work and people; personal habits that make them efficient employees, effective leaders and good neighbors, on and off the job. 3 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

Building Construction -

BC-111 - Machine and tool safety. House framing: erection of batter-boards, use of levels, building framing, door and window framing, stair construction, practical use of framing square, lot and foundation layout and use of transit. Lumber standards: lumber grades, uses measurement, buying and estimating material needs. Roof framing: roof design and terms, rafters and roof flashings. 7 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

BC-112 - Roof framing (continued from 1st semester), roof covering, basic cornice and rake construction, rough stair construction, insulation principles including ventilation, dry wall construction with emphasis on gypsum wall application, concrete, location and installation of door hardware, exterior trim, siding and estimating for all material needs. 7 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

BC-211 - Interior finish: application of dry wall, lath and plaster. Insulating for heat and sound control. A study and practice of interior wall finishes. Heat and sound control: the study of acoustics and control of noise, estimating heat loss and the evaluation of insulation materials. Building and installing trusses. Installing [illegible]. Design and layout and construction of [illegible], [illegible] application of stairs used in conventional construction. 7 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

BC-212 - Paneling and interior design: [illegible] and application of panels, mouldings, door and window trim. Plumbing and electrical: mechanics of plumbing and [illegible] theoretical understanding. Installation of [illegible] structural [illegible] with steel and [illegible] reinforcement [illegible] central [illegible] work. [illegible] credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

MACHINE TOOL TECHNOLOGY

CURRICULUM EVALUATION

In the light of your experience on the job, how do you feel about the training you received at SMVTI?

DIRECTIONS: Below are descriptions of courses offered in the Machine Tool Technology program. For those you pursued, evaluate by checking the appropriate box at the right of each question.

Key: Eliminate——Do away with the requirement for all Machine Tool students to satisfactorily complete the course.

Reduce——Lower the amount of time devoted to the course.

OK-adequate——Appears to be appropriate.

Increase——Increase the amount of time devoted to the course.

Change——Inappropriate to program; changes should be made. Please indicate changes in space provided.

COMMUNICATIONS I - Review of the fundamentals of grammar, correction of common errors, spelling and usage, especially of technical terms; punctuation, sentence structure, paragraph structure; factors of unity, coherence and emphasis in composition; technique of writing clear, concise, accurate and effective business communications. 3 credit hours

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

COMMUNICATIONS II - Emphasis on improving the student's ability to read and comprehend material of various levels of complexity. Special techniques of technical report writing are presented, including the use of definitions, descriptions, classifications, and interpretations. Attention is directed to the various attributes of the report, such as clarity, conciseness and completeness. 3 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

ENGLISH COMPOSITION - Review of grammar, sentence structure, paragraph structure and composition with emphasis on unity, coherence and conciseness; the technique of writing accurate and effective business communications. Intensive work in the area of technical report writing will include the use of definitions, descriptions, classifications, and interpretation. The student will read various types of material, including essays and short stories at different levels of complexity with emphasis on comprehension. 3 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

AMERICAN LITERATURE - A study of American literature enabling the student to read short stories critically, to examine American novels based on a study of the elements of scale, thematic motifs, positions of emphasis, intention and interpretation structure and the final synthesis. 3 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

MATHEMATICS I - Introduction to the fundamentals of arithmetic, algebra, geometry and trigonometry. 4 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

Machine Tool Technology - 2

MATHEMATICS II - Algebra: special products and factoring, through quadratic equations. Logarithms: introduction, computation by logs, application of logarithms. Trigonometry: functions of angles of any size, through the solving of oblique triangles. 3 credit hours.	( ) Eliminate ( ) Reduce ( ) OK-adequate ( ) Increase ( ) Change
TRIGONOMETRY - A review of trigonometric functions, right and oblique triangles, and selected topics and problems from trigonometry, principally for MIT students. 2 credit hours.	( ) Eliminate ( ) Reduce ( ) OK-adequate ( ) Increase ( ) Change
COLLEGE ALGEBRA AND TRIGONOMETRY - Fundamental operations; linear and fractional equations; exponents and radicals; algebraic and trigonometric functions; determinants; higher degree equations; logarithms, right and oblique triangles and selected topics. 4 credit hours.	( ) Eliminate ( ) Reduce ( ) OK-adequate ( ) Increase ( ) Change
BLUEPRINT READING AND SKETCHING - This is a course of fundamentals of sketching and reading of blueprints, built on basic principles which are related to the trade interests of the students. 2 credit hours.	( ) Eliminate ( ) Reduce ( ) OK-adequate ( ) Increase ( ) Change
APPLIED TECHNICAL DRAWING - Advance problems in interpretation of blueprints and other graphic media; practice in producing drawings suitable for reproduction and practice in the application of graphic analysis to the solution of physical problems. 3 credit hours.	( ) Eliminate ( ) Reduce ( ) OK-adequate ( ) Increase ( ) Change
ADVANCED TECHNICAL DRAWING - Individual drawing problems pertinent to the field of machine design, and manufacture and additional material related to the technical specialty of the student.	( ) Eliminate ( ) Reduce ( ) OK-adequate ( ) Increase ( ) Change
METALS FABRICATION I - The welding course is a technician level study of welding as it applies to the various trades offered at the school. The approach to welding is as a related subject, stressing the fundamentals of both arc welding and oxy-acetylene welding and how arc welding can be best utilized by the trades involved. 2 credit hours.	( ) Eliminate ( ) Reduce ( ) OK-adequate ( ) Increase ( ) Change
METALS FABRICATION II - This course is a technician level study of welding as it applies to the various trades offered at the school. The approach to welding is as a related subject, stressing the fundamentals of arc welding and how arc welding can be best utilized by the trades involved. 2 credit hours.	( ) Eliminate ( ) Reduce ( ) OK-adequate ( ) Increase ( ) Change
GENERAL PHYSICS I - A study of the basic principles of the universe in the area of mechanics; covering measurements, forces, vector composition and resolution, equilibrium kinematics, dynamics, work, energy, power and rotary motion, with applications in solving technical problems. Related weekly laboratory experiments. 4 credit hours.	( ) Eliminate ( ) Reduce ( ) OK-adequate ( ) Increase ( ) Change

Machine Tool Technology - 3

GENERAL PHYSICS II - A study of the basic principles of the universe in the areas of heat, electricity, sound and light, with applications used in solving technical problems. Related weekly laboratory experiments. 4 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

TECHNICAL PHYSICS I - A non-calculus approach to the analysis of basic relationships in mechanics, with emphasis on applying an understanding of these in solving technical problems. Weekly related experiments. 4 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

TECHNICAL PHYSICS II - A non-calculus approach to the analysis of the basic relationships in heat, sound, electricity and light, with emphasis on applying an understanding of these in solving technical problems. Weekly related experiments. 4 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

STRENGTH OF MATERIALS - A basic non-calculus analysis of stress and strain as related to connections, beams, columns, consideration of torsion and other applications. 3 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

PHYSICAL EDUCATION - This course is a recreation oriented program that offers students a wide variety of activities that can be used during leisure time as well as providing the opportunity to achieve at a level of physical endurance that enables the student to enjoy fitness and health. 1 credit hour.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

BUSINESS MANAGEMENT I - Orientation in the economics of the American business system. Course places emphasis on the following factors relating to business: nature, environment, ownership, management, organization, marketing and operational factors. 3 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

ECONOMICS - This is a survey of economic issues and institutions as they are related to social needs. This course examines the practices and procedures for providing for human satisfaction from a limited resource base. 3 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

HUMAN RELATIONS - Designed to help the students develop an awareness of psychological principles, attitudes toward work and people; personal habits that make them efficient employees, effective leaders and good neighbors, on and off the job. 3 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

Machine Tool Technology - 4

MTT-111 - The first semester teaches orientation with human relations in the shop with good safe working habits. Emphasis is on standard machine shop machine design, construction and maintenance. Basic drill press, lathe, shaper and milling machine operations are practiced. 7 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

MTT-112 - Emphasis is on advanced machine operations with closer tolerances, involving projects designed to cause students to be more aware of the efficient use of the time element. Operation of vertical, plain and universal milling machines, including flat surface, angular and circular set-ups, uses of various accessories, including dividing heads for plain, angular and differential indexing; jug boring, stressing precise hole location, finish and size. 7 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

MTT-211 - Metallurgy is a unit, teaching the physical structures of various ferrous and non-ferrous metals and alloy types, including allotropy, alloy effect, equilibrium phase diagrams, heat treatment of various metals, alloy analysis, preparation and examination of samples. Hardness and tensile strength demonstrations. 7 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

MTT-212 - The hydraulics unit is an introduction to the basic concept of fluid power, familiarization with component construction, operation and maintenance of fluid power systems. The two unit Tool and Die Design covers construction, types and uses, die materials, heat treating and machining. 7 credit hours.

( ) Eliminate
( ) Reduce
( ) OK-adequate
( ) Increase
( ) Change

PAGES 114 THROUGH 120 CONTAINING THE NAMES AND ADDRESSES OF THE GRADUATES STUDIED WERE REMOVED FROM THIS DOCUMENT PRIOR TO ITS BEING SHIPPED TO THE ERIC DOCUMENT REPRODUCTION SERVICE.