A COMPARISON OF MECHANICAL POWER TECHNOLOGY CURRICULUMS IN THE UNITED STATES AND THAILAND

By

SAKSIT ARIYA

Bachelor of Engineering

King Mongkut's Institute of Technology

Thonburi, Thailand

1969

Submitted to the Faculty of the Graduate College
of the Oklahoma State University
in partial fulfillment of the requirements
for the Degree of
MASTER OF SCIENCE
May, 1980

A COMPARISON OF MECHANICAL POWER TECHNOLOGY

CURRICULUMS IN THE UNITED STATES

AND THAILAND

Thesis Approved:

Cecil W. Dugger
Thesis Adviser

Richard W. Tinnell

Lloyd D Briggs

Norman N Durham
Dean of Graduate College

ACKNOWLEDGMENTS

Many persons have contributed to this study and its completion would not have been possible without their contributions of time, advice, and patience.

A special thanks and gratitude are extended to my adviser, Dr. Cecil W. Dugger, and committee members Dr. Donald S. Phillips and Dr. Richard W. Tinnell.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

A developing country depends heavily upon industrial activities of which engineers, technicians, and skilled craftsmen make up the major manpower team. Such a country's vocational-technical education system not only needs to produce a sufficient number of personnel to fill these jobs but also persons with appropriate kind and level of skills. Since educational programs play an important role in a developing country it is necessary to continually examine and improve the programs in order to meet the changing needs of industries for technical manpower. Because of this ever present phenomenon, the technical education programs of Thailand should be examined and improved.

Thailand's Institute of Technology and Vocational Education offers technical programs throughout the Kingdom in the following branches and cities:

1. Bangkok Technical Institute, Bangkok
2. Southern Technical Institute, Songkhla
3. Northeastern Technical Institute, Nakornrajsima
4. Northern Technical Institute, Chiang Mai
5. Tak Technical Institute, Tak

These five branch campuses of the Institute of Technology and Vocational Education offers technical education programs in the following six disciplines:

a. Mechanical Power Technology (Automotive Technology)

b. Civil Engineering Technology (Construction and Surveying)

c. Electrical Power Technology

d. Electronic Technology

e. Machine Tool Technology

The first four technical institutes listed above are under Thailand's Third National Economic and Social Development Plan. To assist in the development of these institutes a loan was obtained from the Asian Development Bank (ADB) to improve their technician education programs through a revision of their curriculums and technical training facilities. At first sixteen faculty members from each of the four campuses and two International Labour Organization (ILO) experts were brought together to discuss and prepare a draft curriculum and related equipment list in each of the technical specialty areas. A "Curricula and Course Descriptions" booklet, giving the committee's recommendations, was adopted, published, and distributed by the Ministry of Education.

Problem Statement

As part of Thailand's Economic and Social Development effort to expand and modernize training programs of technician education, the two International Labour Organization (ILO) experts and the sixteen technical specialty faculty members developed a new curriculum in the field of Mechanical Power Technology (MPT). The problem with which this study was directly concerned is that when the present curriculum was developed the committee did not consider similar curriculums in other countries and information from graduates and their employers. Instead they compared curriculums of the four technical institutes in

Thailand and the recommended curriculum was a compromise of the four existing ones. This study was an attempt to provide information which technical educators and school administrators need to bring about an immediate improvement in the Mechanical Power Technology programs throughout the Kingdom of Thailand.

Purpose of the Study

The purpose of this study was to compare Thailand's Institute of Technology and Vocational Education Mechanical Power Technology (MPT) curriculum with selected ECPD MPT programs in the United States. The selected programs in the United States were in two-year post secondary technical institutes and technical colleges and were accredited by the Engineer's Council for Professional Development (ECPD). The specific purposes of the study were:

a. To analyze the curriculum content of Thailand's Institute of Technology and Vocational Education in Mechanical Power Technology.

b. To compare the curriculum content of the Mechanical Power Technology curriculum offered in Thailand with those offered by select institutions throughout the United States.

c. To determine the similarities and differences among Thailand's Technical Education in Mechanical Power Technology curriculum and similar MPT programs in the United States.

Need for the Study

According to the Ministry of Education there is a need for this study. The people of "Curricula and Course Descriptions," published by the Ministry's Institute of Technology and Vocational Education states that:

> The Third National Economic and Social Development Plan of the Royal Thai Government inter-alia contains a proposal to develop higher levels of technical and industrial management competence for both the private and public sectors of trade, industry and commerce. The responsibility for implementing the proposal has been made over to the Institute of Technology and Vocational Education (ITVE). The ITVE realized that the proposal could be accomplished through a revision and standardization of the existing curriculum (Institute of Technology and Vocational Education, 1978 Preface).

The Mechanical Power Technology curriculum is one of the several programs according to the Ministry of Education, that needs to be analyzed. Too, there is an ever present concern of technical educators as to the quality and direction of their technician curriculums.

Scope of the Study

The scope of this study was limited to:

1. The existing MPT curriculum followed by the five public Technical Institutes of Thailand.

2. And fifteen select ECPD MPT curriculums in two-year post secondary technical institutes and technical colleges throughout the United States.

Definition of Terms

To avoid possible misinterpretation the terms used in this study are defined as follows:

Institute of Technology and Vocational Education - refers to an institution in Thailand offering several technology and vocational education programs on twenty-six campuses throughout the Kingdom which are administered by the Ministry of Education.

Mechanical Power Technology Education in Thailand - refers to an education within Automotive Technology, the comparable name in the United States is Mechanical Power Technology (MPT).

Speciality Course - refers to a technical course within the speciality major.

Auxiliary Course - refers to a technical course other than in the speciality major.

Technical Course - refers to speciality and auxiliary courses totally.

CHAPTER II

REVIEW OF LITERATURE

The purpose of this study was to compare Thailand's Institute of Technology and Vocational Education Mechanical Power Technology (MPT) curriculum with selected MPT programs in the United States. The selected programs studied in the United States were in two-year post secondary technical institutes and technical colleges and were accredited by the Engineers' Council for Professional Development (ECPD).

The review of literature in this study is divided into the four basic sections as follows:

1. The objectives of technician education
2. Thailand's technician education
3. Technician education curriculum
4. Curriculum analysis

The Objectives of Technician Education

The objectives of technician education as recommended by the Technical Education Department at Oklahoma State University, Stillwater, Oklahoma are:

1. To assist the student in developing sufficient knowledge and skills to become employable with little or no additional training, in any one of several entry-level jobs within a particular field of technology.

2. To help the student develop a technical and scientific background sufficient in both depth and breadth to allow him occupational advancement and mobility and to enable him to keep abreast of technological change.
3. To assist the student in developing an educational foundation which will enable him to continue to study and advance professionally.
4. To prepare the individual for becoming a useful member of his society by learning to contribute positively to it (Dugger, 1979).

Objectives of one ECPD MPT program in the United States is given in the Stark Technical College Catalog (1979-1980):

> The purpose of the Mechanical Engineering Technology program is to provide training for the application of scientific and engineering principles in the support of mechanical engineering activities. The technician must have a training similar to that of a mechanical engineer, but the two year program places more emphasis on practical application and experience.
>
> The mechanical engineering technician may work in many areas in design and development. The technician prepares, sketches, draws, and analyzes proposed equipment components. Analysis of cost and practical value of design must be incorporated. Thus, the mechanical principles involving design tolerance, stress, strain, friction, and vibration must be understood.
>
> The technician may become involved in the testing of equipment and materials for recommending design changes, improving performance or eliminating production problems. Therefore, the technician must be able to conduct projects, record and represent data, analyze results and prepare formal reports.
>
> The mechanical engineering technician may be involved in the selection and coordination of equipment and procedures for manufacturing. Therefore, an understanding of processes, materials and supervision is essential (p. 55).

Thailand's Technician Education

The objective of technician education in Thailand according to the "Curricula and Course Descriptions," of the Institute of Technology and Vocational Education, Ministry of Education is:

> . . .to train a person for the semi-professional level between the skilled worker and the professional engineer commonly called 'technician.' Technician is a key person in planning and scheduling or manufacturing, operating and maintenance programs besides acquisition of the

skills involved in the processes and competence in supervisory functions. He also contribute to product development, quality control, higher productivity and profitability (Institute of Technology and Vocational Education, 1978, preface).

Technician Education Curriculum

According to Tyler (1949) the following questions must be answered in developing any curriculum and plan of instruction:

1. What educational purposes should the school seek to attain?
2. What educational experiences can be provided that are likely to attain these purposes?
3. How can these educational experiences be effectively organized?
4. How can we determine whether these purposes are being attained (p. 1)?

There is a set of general requirements for a technician education curriculum. They should be essentially universal, in that they represent abilities rather than specific functions.

"Occupational Criteria and Preparator Curriculum Patterns in Technical Education Programs," Roney (1965) gives the following general abilities:

1. Facility with mathematics; ability to use algebra and trigonometry as tools in the development of ideas that make use of scientific and engineering principles; an understanding of, though not necessarily facility with, higher mathematics through analytical geometry, calculus, and differential equations, according to the requirements of the technology.
2. Proficiency in the application of physical science principles including the basic concepts and laws of physics and chemistry that are pertinent to the individual's field of technology.
3. An understanding of the materials and processes commonly used in the technology.
4. An extensive knowledge of a field of specialization with an understanding of the engineering and scientific activities that distinguish the technology of the field. The degree of competency and the depth of understanding should be sufficient to enable the individual to do such work as detail design using established design procedures.

5. Communication skills that include the ability to interpret, analyze, and transmit facts and ideas graphically, orally, and in writing (p. 5).

According to Brooking in "Criteria for Technical Education - A Suggested Guide" (1968), the courses in a technician's curriculum are usually grouped under the following classifications:

1. Basic science and courses which provide the foundation of scientific facts, principles, methods and attitudes on which the technician's specialized application of that science depends.
2. Mathematics courses as required by the technology to enable the student to quantify scientific phenomena and to establish precise definition and interpretation of such phenomena, observations, or applications.
3. Technical specialty courses and their auxiliary supporting studies which teach the special skills, knowledge, techniques applications, procedures, materials processes, apparatus, operations, and services that identify the technology and prepare the student for a variety of employment opportunities in that technical field.
4. Communications courses which teach oral, written, and graphic skills, the required reading capability, and the ability to communicate successfully with co-workers and others.
5. Social studies courses which provide a technician with an elementary frame of reference in economics, citizenship, and social relationships as an individual, member of a family, employee, and citizen (p. 55).

Curriculum Analysis

Within the philosophical frame of reference Roney, in "Curriculum Design in Technical Education" (1964), summarizes the criteria for analyzing technical curriculum structures into six categories:

1. The curriculum should have at least 30 credit hours of specialized course work in the field of specialization and from 15 to 20 credit hours of Mathematics and Science.
2. The technical specialty should be introduced in the first term by one or two major courses.
3. Mathematics and Science courses should be coordinated with technical course whenever possible, to introduce concepts as they are needed.

4. Auxiliary technical courses should be included to broaden the student's understanding of the technology.
5. Provision should be made for either individual or small group problem work during the final term to promote independent thinking and to test each individual's comprehension of the total curriculum content.
6. The total class and laboratory load for students should not exceed 30 hours per week and should not include more than 5 courses requiring extensive outside preparation (p. 8).

CHAPTER III

METHODOLOGY

The objective of the study was to analyze and compare the existing Mechanical Power Technology (MPT) curriculum used at four of the five public technical institutes in Thailand and fifteen selected ECPD accredited MPT programs in the United States.

The population comprised of the existing program curriculum adopted by the Ministry of Education which was developed and recommended by sixteen MPT representatives from four technical institutes and two International Labour Organization (ILO) experts and fifteen select programs from all eighty-four ECPD accredited "MPT type" curriculums of post-secondary schools in the United States. Only fifteen MPT programs in two-year post secondary technical institutes and technical colleges were listed as being accredited in the "46th Annual Report of the Engineers' Council for Professional Development" (1978). A letter of inquiry was sent to the registrar of each school requesting information about their institution and their MPT program. A copy of the letter mailed to each registrar is shown in Appendix A. Mailing addresses of the fifteen schools were obtained from the <u>Technician Education Yearbook</u> 1977-1978.

Treatment of Data

For each course in each curriculum the researcher determined the number of hours per week spent in theory (T), number of hours per week spent in laboratory (L), and the number of credit hours awarded (C). For analysis purposes, these T, L and C hours were converted to percentages of total credit hours.

All data was subdivided according to some of Roney's (1964) recommended criteria and Thailand's MPT objectives as follows:

1. Total credit hours
2. Percentage of specialty
3. Percentage of auxiliary
4. Percentage of mathematics
5. Percentage of science
6. Percentage of general education
7. Percentage of laboratory in technical courses

Determining Course Categories

To determine whether a course should be included in the specialty, auxiliary, mathematics, science or general education category the course description in the catalog was analyzed. The general titles of the courses in the various categories are given in Appendix D.

CHAPTER IV

FINDINGS

After requesting information by letter, college catalogs and pamphlets were received. It was found after further study that one of the technical institutes offered a four-year Bachelor of Science degree program rather than a two-year program. Therefore, information from this program was not used. Also, the name of one college had changed and is no longer considered a technical college, one college offered no Mechanical Engineering Technology and another did not give the number of theory hours and laboratory hours which was needed for the study. So information about these latter programs were also eliminated from the study. Information used in the study came from Thailand's MPT program and eleven ECPD MPT "type" programs. The most frequently used name of the ECPD MPT program was found to be Mechanical Engineering Technology.

Curriculum Analysis

The criteria used in the curriculum analysis was applicable to Thailand's MPT and the eleven ECPD MPT programs. The curriculum analysis was limited to the following types of course work: specialty, auxiliary, mathematics, science, general education and laboratory in technical courses. Each program was analyzed by credit hours in these six categories. The credit hours in the six categories in each program appears in Appendix C.

General education includes courses other than technical (specialty and auxiliary totally), mathematics, and science. The eleven ECPD MPT programs were analyzed by percentages of total credit hours and the averages of hours in specialty, auxiliary, mathematics, science, general education and laboratory.

Curriculum of Thailand's MPT Program

The curriculum of Thailand's MPT program was separated into six categories. The total semester hours as shown in Table I, were 91. The credit hours in each of the six categories and their percentages as shown in Tables I, II, and III were found to be 55 credit hours in specialty or 60.4 percent, 16 credit hours or 17.6 percent in auxiliary, 6 credit hours or 6.6 percent in mathematics, 6 credit hours or 6.6 percent in science, 8 credit hours or 8.8 percent in general education, and 19 credit hours or 20.9 percent in laboratory course work in technical courses. The distribution of the credit hours and percentages in Thailand's MPT program are shown in Figures 1 and 2.

Analysis of All ECPD MPT Program Curriculums

The percentages of specialty, auxiliary, mathematics. science, general education, and laboratory in technical course of all ECPD MPT programs are shown in Tables I, II, and III. The averages of total credit hours and percentages were found to be 27.7 credit hours or 26.4 percent specialty, 30.2 credit hours or 29.4 percent auxiliary, 17.7 credit hours or 16.3 percent mathematics, 13.0 credit hours or 12.7 percent science, 16.1 credit hours or 15.2 percent general

TABLE I

CATEGORIES AND CREDIT HOURS OF SELECTED ECPD MPT AND THAILAND'S MPT PROGRAMS

School	Spec.	Aux.	Math.	Sci.	Gen. Ed.	Total Credit Hours
Kansas State Technical Institute	17	21	12	7	9	66*
Midlands Technical College	35	40	18	8.5	19	120.5**
Nashville State Technical Institute	21	39	15	15	20	110
Norwalk State Technical College	35	30	19	16	18	118
Stark Technical College	31	26	18	13	20	108
State Technical Institute at Knoxville	28	32	14	16	12	102
State Technical Institute at Memphis	30	29	16	13	24	112
Thames Valley State Technical College	24	35	19	16	19	113
Trident Technical College	37	27	18	16	9	107
Vermont Technical College	19	25	13	10	9	76
Waterbury State Technical College	28	32	25	16	18	119
Averages of Selected ECPD MPT Programs	27.7	30.2	17.7	13.0	16.1	104.7
Thailand's Technical Institute	55	16	6	6	8	91

*Minimum

**Maximum

TABLE II

CURRICULUM ANALYSIS OF SELECTED ECPD MPT AND THAILAND'S MPT PROGRAMS IN PERCENTAGE OF TOTAL CREDIT HOURS

School	Spec.	Aux.	Math.	Science	Gen. Ed.
Kansas State Technical Institute	25.8	31.8	18.2	10.6	13.6
Midlands Technical College	29.0	33.2	14.9	7.1*	15.8
Nashville State Technical Institute	19.1*	35.5**	13.6*	13.6	18.2
Norwalk State Technical College	29.1	25.4	16.1	13.6	15.2
Stark Technical College	28.7	24.1	16.7	12.0	18.5
State Technical Institute at Knoxville	27.4	31.4	13.7	15.7**	11.8
State Technical Institute at Memphis	26.8	25.9	14.3	11.6	21.4**
Thames Valley State Technical College	21.2	31.0	16.8	14.2	16.8
Trident Technical College	34.6**	25.2*	16.8	15.0	8.4*
Vermont Technical College	25.0	32.9	17.1	13.2	11.8
Waterbury State Technical College	23.5	26.9	21.0**	13.4	15.2
Averages of Selected ECPD MPT Programs	26.4	29.4	16.3	12.7	15.2
Thailand's Technical Institute	60.4	17.6	6.6	6.6	8.8

*Minimum

**Maximum

TABLE III

COMPARISON TECHNICAL, NON-TECHNICAL, AND LABORATORY IN TECHNICAL PROGRAMS

School	Total Credit Hours	Tech.		Non-Tech		Lab. in Tech.	
		Cr. Hr.	%	Cr. Hr.	%	Cr. Hr.	%
Kansas State Technical Institute	66*	38*	57.6	28*	42.4	15	22.7**
Midlands Technical College	120.5**	75**	62.2	54.5	37.8	22	18.3
Nashville State Technical Institute	110	60	54.6	50	45.4	17	15.5
Norwalk State Technical College	118	65	55.1	53	44.9	25**	21.2
Stark Technical College	108	57	52.8	51	47.2	22	20.4
State Technical Institute at Knoxville	102	60	58.8	42	41.2	19	18.6
State Technical Institute at Memphis	112	59	52.7	53	47.3	18	16.1
Thames Valley State Technical College	113	59	52.2	54	47.8	15	13.3*
Trident Technical College	107	64	59.8	43	40.2	15	14.0
Vermont Technical College	76	44	57.9	32	42.1	11*	14.5
Waterbury State Technical College	119	60	50.4	59**	49.6	20	16.8
Averages of Selected ECPD MPT Programs	104.7	57.9	55.3	46.8	44.7	18.1	17.4
Thailand's Technical Institute	91	71	78.0	20	22.0	19	20.9

*Minimum

**Maximum

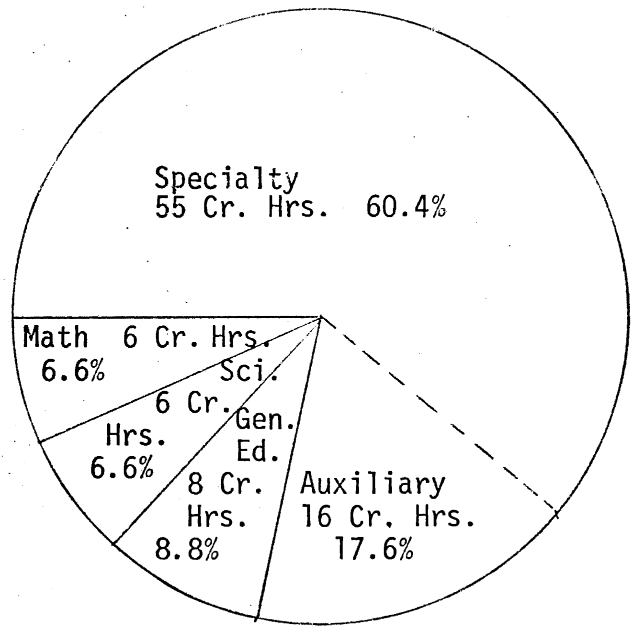

Figure 1. Distribution of Courses in the MPT Programs of Thailand

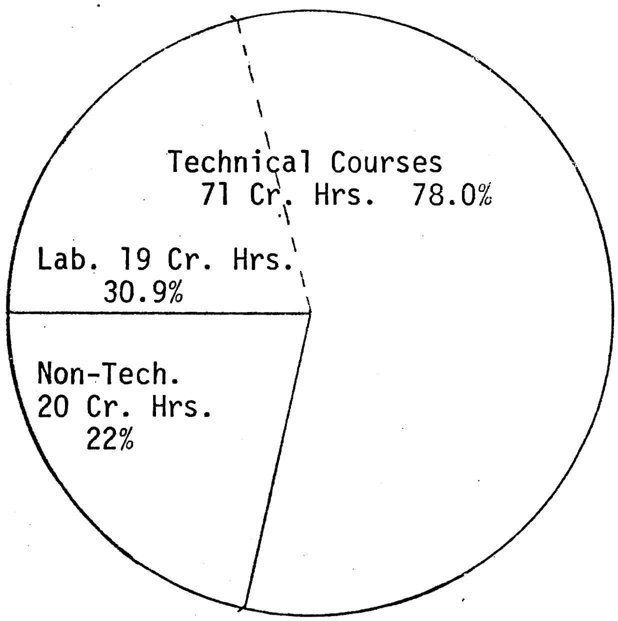

Figure 2. Distribution of Technical Courses, Laboratory in Technical Courses and Non-Technical Courses of Thailand's MPT Program

education, and 18.1 credit hours or 17.4 percent laboratory in technical courses. The distribution of these categories in the average of all ECPD MPT programs are shown in Figures 3 and 4.

Tables II and III show the maximum and minimum of credit hours of course categories in ECPD MPT programs. The maximum percentage of specialty is 34.6 the minimum is 19.1, the maximum percentage of auxiliary is 35.5, the minimum is 25.2, the maximum percent of mathematics is 21.0, the minimum is 13.6, the maximum percent of science is 15.7, the minimum is 7.1, the maximum percent of general education is 21.4 the minimum is 8.4, and the maximum percentage of laboratory in technical course is 22.7 and the minimum is 13.3.

Comparison of Course Category Averages of ECPD MPT and Thailand's MPT Programs

The curriculums were compared in two areas -- technical courses and non-technical courses. The technical course (specialty and auxiliary) comparison is given in Tables II, III, Figures 3, and 4. Among the ECPD MPT programs 55.3 percent are technical courses, 26.4 percent are specialty courses, 29.4 percent auxiliary and 17.4 percent laboratory in technical courses. In Thailand's MPT curriculum 78.0 percent are technical courses, 60.4 percent specialty, 17.6 percent auxiliary, and 20.9 percent laboratory in technical courses.

Figures 5 and 6 show the percentages and comparison of all MPT curriculums' non-technical courses, mathematics, science and general education. The ECPD MPT programs contained an average of 44.7 percent non-technical course, 16.3 percent mathematics, 12.7 percent science, and 15.2 percent general education. Thailand's MPT program contains

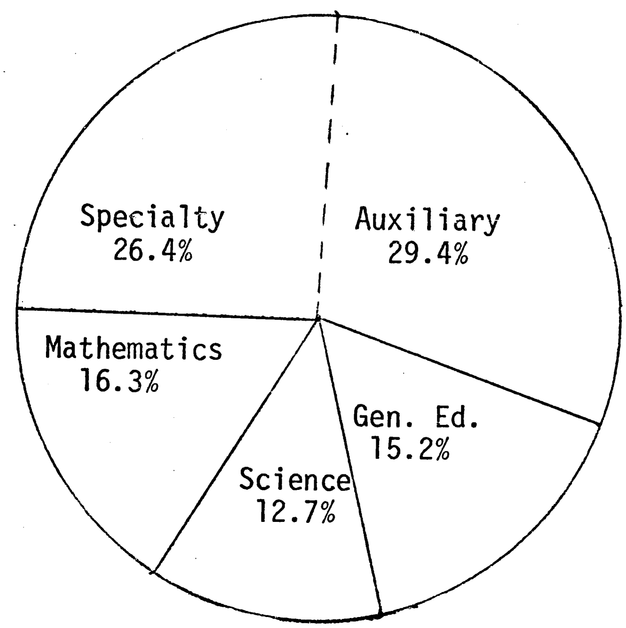

Figure 3. Distribution of the averages of Credit Hours of Course Categories of Selected ECPD MPT Programs

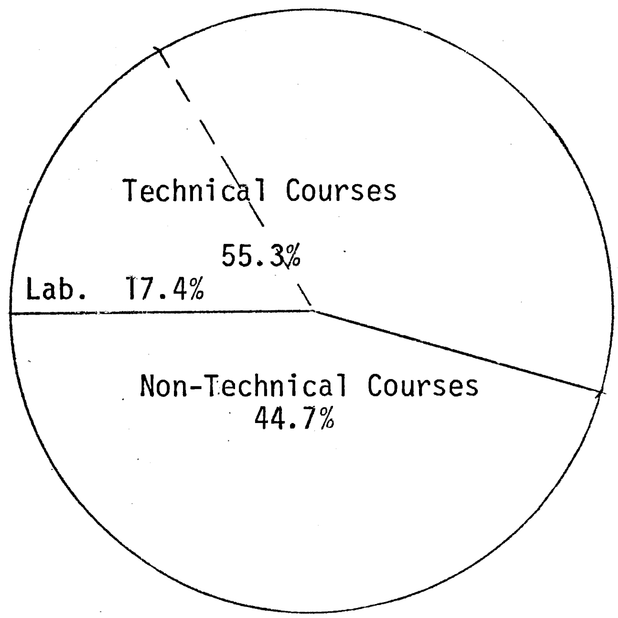

Figure 4. Distribution of Percentage of Credit Hours of Technical Courses, Laboratory in Technical Courses, and Non-Technical Courses of Selected ECPD MPT Programs

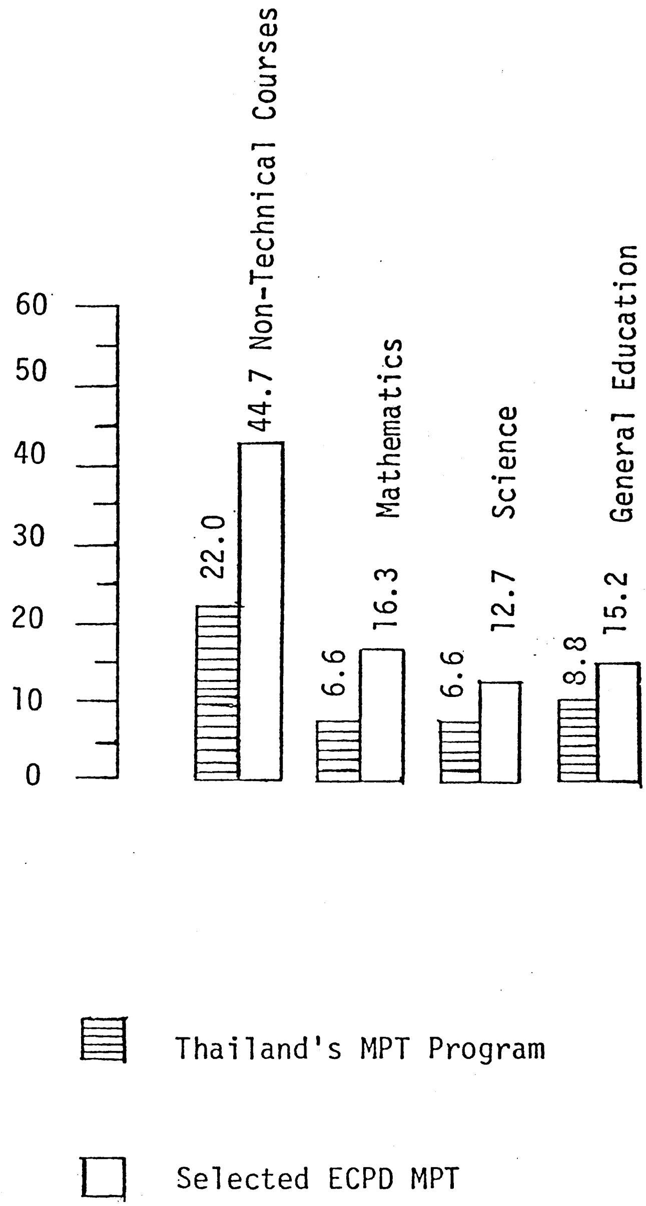

Figure 5. Comparison of Non-Technical Courses by Percentage of Total Credit Hours of Thailand's and Selected ECPD MPT Programs

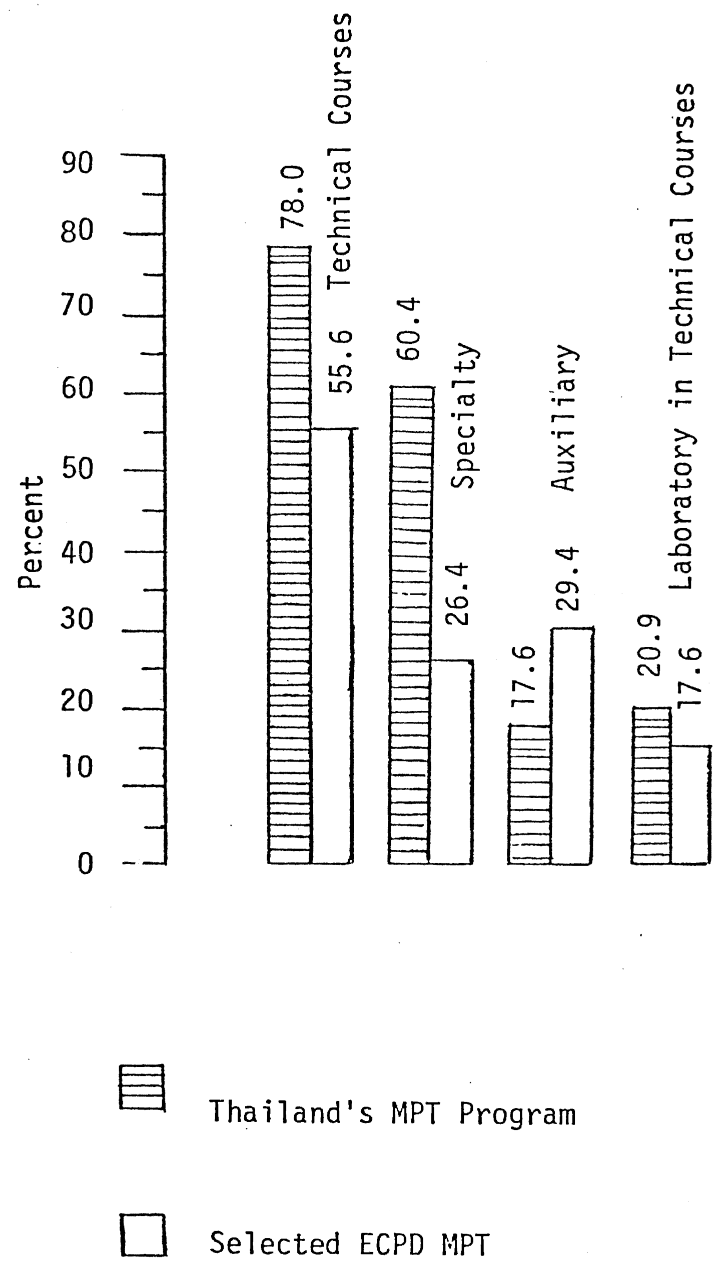

Figure 6. Comparison of Technical Courses by Percentage of Total Credit Hours of Thailand's and Selected ECPD MPT Programs

22.0 percent non-technical courses, 6.6 percent mathematics, 6.6 percent science, and 8.8 percent general education.

The difference in the non-technical courses of ECPD MPT programs is 22.7 percent more than Thailand's MPT program. The mathematics required of ECPD MPT program is 9.7 percent more than Thailand's MPT program. The science of ECPD MPT programs is 6.1 percent more than Thailand's MPT program. And general education of ECPD MPT program is 6.4 percent more than Thailand's MPT programs.

The technical courses of the ECPD MPT programs are 22.4 percent less than Thailand's MPT program. The 34.0 percent specialty courses of ECPD MPT programs are less than those required in Thailand's MPT program. The 11.8 percent auxiliary courses of the ECPD MPT program are more than Thailand's MPT program. And 3.5 percent laboratory in technical courses of ECPD MPT programs is less than in Thailand's MPT program.

Analysis of Laboratory in Technical Courses of All MPT Programs

The percentage of laboratory in technical course of all MPT programs is shown in Tables III and IV. Based upon information shown in Tables II and IV Thailand's MPT program receives the rank of three while the average of select ECPD MPT receives the rank of six from the maximum. Thailand's MPT program is 1.8 percent less than the maximum, 3.5 percent more than the average and 7.6 percent more than the minimum of ECPD MPT programs.

TABLE IV

LABORATORY IN TECHNICAL COURSES IN PERCENTAGE OF ALL MPT PROGRAMS

Rank	Percentage Range	No. of Programs
1	23.0 - 22.1	1
2	22.0 - 21.1	1
3	21.0 - 20.1	2
4	20.0 - 19.1	0
5	19.0 - 18.1	2
6	18.0 - 17.1	1
7	17.0 - 16.1	2
8	16.0 - 15.1	1
9	15.0 - 14.1	2
10	14.0 - 13.1	1

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this study was to compare Thailand's Mechanical Power Technology (MPT) curriculum with selected Mechanical Power Technology (MPT) curriculums of two-year post secondary technical institutes and technical colleges accredited by the Engineers' Council for Professional Development (ECPD) in the United States. It was found that Thailand's MPT program includes more technical courses than the average of the ECPD MPT programs but less non-technical courses by percent of total credit hours. Percentage of laboratory in technical courses of Thailand's MPT program was more than the average of ECPD MPT program.

Conclusions

It was found that Thailand's MPT program emphasized technical courses rather than non-technical courses when compared with selected ECPD MPT programs in the United States. There were a greater number of courses offered as well as a large number of credit hours required for Thailand's MPT program.

Recommendations

Based upon the review of literature and findings of the study it is recommended that:

1. Thailand's Mechanical Power Technology program contain fewer total credit hours.

2. Thailand's Mechanical Power Technology program reduce the proportion of technical courses to non-technical courses, especially in the specialty area.

3. Thailand's Mechanical Power Technology program add more mathematics, science, and general education.

4. Tahiland's Mechanical Power Technology program reduce the number of courses required.

SELECTED BIBLIOGRAPHY

(1) Brooking, Walter J., and Ducat, Alexander C. Criteria for Technician Education: A Suggested Guide. Washington, D.C.: Government Printing Offices, 1968.

(2) Dugger, Cecil W. Interview. Oklahoma State University, Stillwater, Oklahoma, July, 1979.

(3) Engineers' Council for Professional Development. 46th Annual Report for the Year Ending September 30, 1978. New York, 1978.

(4) Institute of Technology and Vocational Education. Curricula and Course Descriptions. Bangkok, Thailand: Ministry of Education, April, 1978.

(5) Kansas State Technical Institute, 1979-1981 General Bulletin. Kansas: Kansas Technical Institute, 1979.

(6) Midlands Technical College, General Information 1978-1979. Columbia, South Carolina: Office of Public Relations, 1978.

(7) Nashville State Technical Institute 1978-1979 Catalog. Nashville, Tennessee: Nashville State Technical Institute, 1978.

(8) Norwalk State Technical College Catalog 1977-1979. Norwalk, Connecticut: Norwalk State Technical College, 1978.

(9) Roney, Maurice W. Occupational Criteria and Preparatory Curriculum Pattern in Technical Education Programs. Washington, D.C.: Government Printing Office, 1965.

(10) Roney, Maurice W. "An Analysis of the Interrelationship of Mathematics, Science, and Technical Subject Matter in Selected Technical Institute Curricula." (Unpub. Ed.D. Dissertation, University of Maryland, 1964.)

(11) Roney, Maurice W. Curriculum Design in Technical Education. Stillwater, Oklahoma: Oklahoma State University, School of Industrial Education, 1964.

(12) Robertson, Luther Paul, Jr. "An Evaluation of Electromechanical Technology Curriculum at Oklahoma State University." (Unpub. Ed.D. Dissertation, Oklahoma State University, 1970.)

(13) State Technical Institute at Knoxville Catalog 1978-1979. Knoxville, Tennessee: State Technical Institute at Knoxville, 1978.

(14) State Technical Institute at Memphis 1978-1979 Catalog. Memphis, Tennessee: State Technical Institute at Memphis, 1978.

(15) Stark Technical College Catalog 1979-1980. Canton, Ohio: State Technical College, 1979.

(16) Technician Education Yearbook 1977-1978. Ann Arbor, Michigan: Prakken Publications, Inc., 1978.

(17) Thames Valley State Technical College Catalog 1978-1979. Norwich, Connecticut: Thames Valley State Technical College, 1978.

(18) Trident Technical College Catalog 1976-1978, Volume III. North Calston, South Carolina: Trident Technical College, 1976.

(19) Tunnell, Royce Kent. "A Study of Northeastern Oklahoma A&M College's Technician Education Program and Graduates from 1971 to 1976." (Unpub. M.S. Thesis, Oklahoma State University, 1977.)

(20) Tyler, Ralph W. Basic Principles of Curriculum and Instruction. Chicago: The University of Chicago Press, 1949.

(21) Vermont Technical College Bulletin, Vol. XVI, No. 1 Randolph, Vermont: Vermont Technical College, 1978.

(22) Waterbury State Technical College Catalog 1978-1979. Waterbury, Connecticut: Waterbury State Technical College, 1978.

APPENDIXES

APPENDIX A

LETTER OF INQUIRY

816 W. 4th Street, #12
Stillwater, OK 74074

April 21, 1979

Dear Sir or Madam:

Please send me a copy of your latest catalog with curriculum and information on your Mechanical Engineering Technology or equivalent program, associate degree. It will very much be appreciated. Thank you for your response.

Sincerely,

Saksit Ariya

APPENDIX B

NAMES, LOCATIONS, AND CREDIT SYSTEM UTILIZED IN SELECTED ECPD MPT PROGRAMS

Names and Locations of Schools	Credit System
Kansas Technical Institute 2409 Scanlon Avenue Salina, KS 67401	Semester
Midlands Technical College P. O. Drawer Q Columbia, SC 29250	Quarter
Nashville State Technical Institute 120 White Bridge Road Nashville, TN 37209	Quarter
Norwalk State Technical College 181 Richards Avenue Norwalk, CT 06854	Quarter
Stark Technical College 6200 Frank Avenue NW Canton, OH 44720	Quarter
State Technical Institute at Knoxville 3435 Division Street Knoxville, TN 38134	Quarter
State Technical Institute at Memphis 5435 Division Street Knoxville, TN 38134	Quarter
Thames Valley State Technical College Norwich, CT 06360	Quarter
Trident Technical College 7000 Rivers Avenue North Charleston, SC 29411	Quarter
Vermont Technical College Randolph Center Vermont 05061	Semester
Waterbury State Technical College 1460 West Main Street Waterbury, CT 06708	Quarter

APPENDIX C

TRANSLATED CURRICULUMS OF MECHANICAL POWER TECHNOLOGY PROGRAM

Thailand's Technical Institutes

Specialty		T	L	C
Fuel and Lubricants		2	0	2
Workshop I, II, III, IV, V, VI		0	48	16
Mechanical Drive		2	0	2
Mechanics of Road Vehicle		3	0	3
Automotive Electricity		2	0	2
Fluid Mechanics		4	0	3
Themodynamics		4	0	3
Fluid power		2	0	2
Internal Combustion Engine I, II		4	0	4
Mechanical Power Lab I, II		2	6	4
Diesel Technology		3	0	3
Maintenance Technology		2	0	2
Steam Technology		3	0	3
Refrigeration & Air Conditioning		3	0	3
Elective		3	0	3
	Totals	39	54	55
Laboratory in Specialty				18

Auxiliary		T	L	C
Industrial Materials I		2	0	2
Mechanics for Technicians		4	0	3
Shop Electricity & Control		2	3	3
Strength of Materials		3	0	3
Electives		5	0	5
	Totals	16	3	16
Laboratory in Auxiliary				1

Mathematics		T	L	C
Mathematic I, II	Total	8	0	6

Science		T	L	C
Industrial Chemistry		3	0	3
Applied Electromechanisms		3	0	3
	Totals	6	0	6

General Education		T	L	C
English I, II		4	0	4
Human Relation		2	0	2
Industrial Management & Cost Estimating		2	0	2
	Totals	8	0	8

Kansas State Technical Institute

Specialty		T	L	C
Mechanical Detailing		0	4	2
Fluid Mechanics		2	2	3
Element of Mechanism		3	0	3
Design Technology I, II		3	6	6
Mechanical Testing Lab		0	2	1
Thermodynamics I		2	0	2
	Totals	10	14	17
Laboratory in Specialty				7
Auxiliary				
Technical Drafting		0	6	3
Manufacturing Methods, I, II		1	9	4
Metallurgy		2	2	3
Statics & Strength of Materials		5	0	5
DC Circuit		2	2	3
Technical Writing		3	0	3
	Totals	13	19	21
Laboratory in Auxiliary				8
Mathematics				
Plane Trigonometry		2	0	2
College Algebra		3	0	3
Analytic Geometry & Calculus I, II		4	0	4
Economics		3	0	3
	Totals	12	0	12
Science				
Applied Chemistry		3	0	3
Technical Physics		3	2	4
	Totals	6	2	7
General Education				
Written Communications		2	0	2
Report Writing Lab		0	2	1
Industrial Relation		3	0	3
Oral Communications		2	0	2
Management & Human Development		1	0	1
	Totals	8	2	9

Nashville State Technical Institute

Specialty		T	L	C
Hydraulics and Pneumatics		2	3	3
Dynamics		3	3	4
Machine Element I, II		6	6	8
Research Project		1	3	2
Applied Heat Transfer		3	3	4
	Totals	15	18	21
Laboratory in Specialty				6

Auxiliary		T	L	C
Introduction to Plastic		2	3	3
Engineering Drafting I, II		0	8	4
Mechanics		3	3	4
Engineering Materials and Production Process		3	3	4
Manufacturing and Machine Tool Operation		3	3	4
Statics		3	0	3
Metallurgy		3	3	4
Strength of Materials		5	3	6
Electrical Technology I, II		6	3	7
	Totals	28	29	39
Laboratory in Auxiliary				11

Mathematics		T	L	C
Algebra and Trigonometry I, II		10	0	10
Applied Calculus and Analytic Geometry I		5	0	5
	Totals	15	0	15

Science		T	L	C
Fortran for Engineering Technology		2	3	3
Electricity and Magnetism		3	3	4
Heat, Light, Sound and Modern Physics		3	3	4
General Chemistry		3	3	4
	Totals	11	12	15

General Education		T	L	C
Effective Writing		4	0	4
Social Studies Elective		8	0	8
Report Writing		4	0	4
Speech		4	0	4
	Totals	20	0	20

Midlands Technical College

Specialty		T	L	C
Kinematics		3	3	4
Dynamics		3	0	3
Fluid Mechanics		3	3	4
Machine Design I, II		3	9	6
Fundamentals of Thermodynamics		5	3	6
Hydraulics and Pneumatics		3	3	4
Heat Power		3	3	4
Air Conditioning		3	3	4
	Totals	26	27	35
Laboratory in Specialty				9

Auxiliary		T	L	C
Engineering Drawing		0	12	4
DC Electricity		3	3	4
Engineering Materials		3	3	4
AC Electricity		3	3	4
Statics		3	3	4
Manufacturing Processes		2	3	3
Strength of Materials		4	3	5
Machine Control		3	3	4
Industrial Engineering Principle		3	3	4
Elective		3	3	4
	Totals	27	39	40
Laboratory in Auxiliary				13

Mathematics		T	L	C
Algebra & Trigonometry I, II		10	0	10
Analytic Geometry & Calculus		5	0	5
Computer Programing		2	3	3
	Totals	17	3	18

Science		T	L	C
General Chemistry I		3.5	3	4.5
Physics II (Heat, Light & Sound)		3	3	4
	Totals	6.5	6	8.5

General Education		T	L	C
Logic Communication		3	0	3
Electives		10	0	10
Human Relation & Motivation		3	0	3
Technical Report Writing		3	0	3
	Totals	19	0	19

Norwalk State Technical College

Specialty	T	L	C
Applied Mechanics	4	2	5
Mechanism	3	3	4
Mechanics of Materials	5	2	6
Machine Design I, II	4	14	10
Thermo-Fluid Mechanics I, II	8	4	10
Totals	24	23	35
Laboratory in Specialty			11
Auxiliary			
Manufacturing Process I, II, III	3	0	3
Manufacturing Process I, II, III Laboratory	0	6	3
Technical Drawing I, II, III	0	12	6
General Electricity I, II	6	4	8
Processes Engineering Technology I	2	0	2
Processes Engineering Technology I Laboratory	0	2	1
Materials in Engineering Design	3	2	4
Elective	2	2	3
Totals	16	28	30
Laboratory in Auxiliary			14
Mathematics			
Technical Mathematics I, II	8	0	8
Calculus I, II	8	0	8
Economics	3	0	3
Totals	19	0	19
Science			
General Chemistry I, II	6	4	8
Physics I, II	6	4	8
Totals	12	8	16
General Education			
English I, II, III	9	0	9
Psychology	3	0	3
Humanity	3	0	3
Human Relation	3	0	3
Totals	18	0	18

Stark Technical College

Specialty		T	L	C
Machine Tools I, II		3	8	7
Fluid Power		4	2	5
Applied Mechanics		5	0	5
Technical Electives		3	8	6
Engineering Technology Seminar		3	2	3
Machine Components Analysis		3	3	5
	Totals	21	23	31
Laboratory in Specialty				11
Auxiliary				
Engineering Drawing		0	6	3
Mechanical Engineering Drawing		0	6	3
Material Science & Metallurgy		2	2	3
Electrical Electronic Fundamentals		2	3	3
Technical Electives		4	6	6
Pre-Engineering Interviewing		3	0	3
Strength of Materials		4	2	5
	Totals	15	25	26
Laboratory in Auxiliary				11
Mathematics				
Technical Mathematic I, II, III, IV, V		20	0	15
Basic Economics		4	0	4
	Totals	24	0	19
Science				
Physic I, II, III		9	6	12
Digital Computers		3	2	3
	Totals	12	8	15
General Education				
Communication Theory		3	2	3
Basic Communication Practice		3	2	3
Industrial Psychology		3	0	3
Society and Technology		4	0	4
Technical Report Writing		4	0	3
Technical Report Seminar		1	0	1
	Totals	15	4	17

State Technical Institute at Knoxville

Specialty		T	L	C
Shop Practices I, II		1	8	4
Dynamics		3	3	4
Fluid Mechanics		3	3	4
Machine Elements		3	3	4
Thermodynamics & Heat Transfer		3	3	4
Specialty Electives		6	6	8
	Totals	19	26	28
Laboratory in Specialty				9
Auxiliary				
Technical Drawing I, II		0	12	4
Statics		3	3	4
Materials & Manufacturing Processes		3	3	4
Strength of Materials		3	3	4
AC and DC Circuits		4	3	5
Industrial Safety		3	0	3
Instrumentation		3	3	4
Introduction to Rotating Machines		3	3	4
	Totals	22	30	32
Laboratory in Auxiliary				10
Mathematics				
Algebra and Trigonometry I, II		10	0	10
Applied Calculus		4	0	4
	Totals	14	0	14
Science				
Computer Programming for Engineering Technology		3	3	4
Physics of Mechanics		3	3	4
Physics of Electricity & Magnetism		3	3	4
General Chemistry		3	3	4
	Totals	12	12	16
General Education				
Oral Communications		3	0	3
Patterns of Composition		3	0	3
Technical Report Preparation		3	0	3
Social Science Elective		3	0	3
	Totals	12	0	12

Waterbury State Technical College

Specialty		T	L	C
Introduction to Mechanical Technology		3	2	4
Fluid Mechanics		3	2	4
Applied Mechanics-Dynamics		2	4	4
Applied Thermodynamics		3	2	4
Mechanical Laboratory		1	4	3
Machine Design		2	6	5
Elective		2	6	5
	Totals	17	22	28
Laboratory in Specialty				11
Auxiliary				
Technical Drawing I, II		2	10	6
Manufacturing Processes		3	1	3
Electrical Applications		4	2	5
Materials Engineering		4	2	5
Strength of Materials I, II		7	5	9
Electrical		3	3	4
	Totals	23	23	32
Laboratory in Auxiliary				9
Mathematics				
Technical Mathematic I, II		8	0	8
Calcalus I, II		8	0	8
Applied Mathematic I - Statics		5	0	5
Economics		4	0	4
	Totals	25	0	25
Science				
Physics I, II		6	4	8
General Chemistry		4	2	5
Fortran Programming		2	2	3
	Totals	12	8	16
General Education				
English Composition		4	0	4
Oral Communication		4	0	4
Literature		4	0	4
Psychology		3	0	3
Human Relation		3	0	3
	Totals	18	0	18

State Technical Institute at Memphis

Specialty	T	L	C
Introduction to Mechanical Engineering Technology	2	3	3
Machines Technology	3	3	4
Dynamics	2	3	3
Machine Design I	3	3	4
Thermodynamics	3	3	4
Fluid Systems	3	3	4
Machine Design and Special Problem	3	3	4
Heat Transfer	3	3	4
Totals	22	24	30
Laboratory in Specialty			8
Auxiliary			
Engineering Drawing I, II	2	12	6
Metal Technology	3	3	4
Engineering Materials	2	3	3
Statics	3	3	4
Quality Control	3	3	4
Strength of Materials	3	3	4
Electro-Mechanical Devices	3	3	4
Totals	19	30	29
Laboratory in Auxiliary			10
Mathematics			
Algebra and Trigonometry I, II	8	0	8
Calculus I, II	8	0	8
Totals	16	0	16
Science			
Physics of Mechanics	2	3	3
Physics of Heat, Light & Mechanical Engineering	2	3	3
Physics of Electricity	2	3	3
Fortran Programming for Technician	3	3	4
Totals	9	12	13
General Education			
Composition	4	0	4
Oral Communication	4	0	4
Technical Writing	4	0	4
Human Relation	4	0	4
Social Science Electives	8	0	8
Totals	24	0	24

Thames Valley State Technical College

Course		T	L	C
Specialty				
Applied Mechanics		4	0	4
Mechanisms		3	3	4
Dynamics		4	0	4
Machine Design		3	2	4
Fluid Mechanics		3	2	4
Applied Thermodynamics		4	0	4
	Totals	21	7	24
Laboratory in Specialty				3
Auxiliary				
Manufacturing Processes I, II		4	5	6
Technical Drawings I, II		2	10	6
Electricity & Electronics		3	2	4
Strength of Materials I, II		6	4	8
Material of Engineering		1	2	2
Numerical Control		1	2	3
Industrial Organization and Management		3	0	3
Environmental Control		3	0	3
	Totals	23	25	35
Laboratory in Auxiliary				12
Mathematics				
Technical Mathematic I, II		8	0	8
Calculus I, II		8	0	8
Economics		3	0	3
	Totals	19	0	19
Science				
Physics (Mechanics)		3	2	4
Physics (H, S, & L)		3	2	4
Principle of Chemistry		3	2	4
Fortran Programming I		3	2	4
	Totals	12	8	16
General Education				
Introduction to Literature		4	0	4
Basic Communication		4	0	4
Technical Communication		4	0	4
Psychology & Human Relation		4	0	4
Sociology		3	0	3
	Totals	19	0	19

Trident Technical College

Specialty		T	L	C
Thermodynamics		5	3	6
Dynamics		2	3	3
Machine Design I, II		3	9	6
Fluid Mechanics		3	3	4
Electives		9	3	10
Air Conditioning		4	0	4
Hydraulics & Pneumatics		4	0	4
	Totals	30	21	37
Laboratory in Specialty				7
Auxiliary				
Engineering Drawing I, II		0	12	4
Manufacturing Processes		3	3	4
Statics		3	3	4
Strength of Materials		4	3	5
Engineering Materials		4	0	4
Industrial Instrumentation		2	3	3
Elective		3	0	3
	Totals	19	24	27
Laboratory in Auxiliary				8
Mathematics				
Algebra & Trigonometry I, II		10	0	10
Analytical Geometry & Calculus		5	0	5
Consumer Economics		3	0	3
	Totals	18	0	18
Science				
General Chemistry		3	3	4
Physics I (Mechanics)		3	3	4
Physics II (Heat, Sound & Light)		3	3	4
Fortran		4	0	4
	Totals	13	9	16
General Education				
English Composition I, II		6	0	6
Technical Report Writing		3	0	3
	Totals	9	0	9

Vermont Technical College

Specialty		T	L	C
Hydraulic and Pneumatic Controls		3	3	4
Basic Mechanisms		3	3	4
Design Problems		1	6	3
Machine Design		4	3	5
Elective		3	0	3
	Totals	14	15	19
Laboratory in Specialty				5
Auxiliary				
Manufacturing Processes I, II		4	6	6
Statics and Strength of Materials		3	3	4
Manufacturing Planning		2	3	3
Electricity and Controls		3	3	4
Manufacturing Design		4	3	5
Elective		3	0	3
	Totals	19	18	25
Laboratory in Auxiliary				6
Mathematics				
Basic Graphics I		0	6	2
Technical Math.		5	0	2
Engineering Graphic II		0	6	2
Calculus		4	0	4
	Totals	9	12	13
Science				
Physic I, II		6	6	8
Computer Programming		2	0	2
	Totals	8	6	10
General Education				
English		3	0	3
Technical Writing		3	0	3
Elective		3	0	3
	Totals	9	0	9

APPENDIX D

COURSE CATEGORIES IN MECHANICAL POWER TECHNOLOGY PROGRAMS

General Names for Specialty Courses

1. Mechanical Drives, Mechanical Principles, Mechanics of Materials, Mechanical Drive Components
2. Thermodynamics, Heat Power
3. Mechanical Detailing, Machine Elements, Applied Mechanics, Mechanics, Machines Technology, Mechanics of Materials, Machine Component Analysis, Machine Technology
4. Mechanics of Road Vehicles
5. Fuels and Lubricants, Engine and Oil Testing Theory
6. Automotive Electricity
7. Fluid Mechanics, Fluid Power
8. Workshop I (Engine & Automachine Shop)
9. Workshop II (Transmission, Brakes & Steering)
10. Workshop III (Tune-Up)
11. Workshop IV (Diesel and Fuel Injection Pump)
12. Workshop IV (Diesel and Fuel Injection Pump)
12. Workshop V (Air and Refrigeration)
13. Workshop VI (General Service)
14. Hydraulics and Pneumatics, Industrial Pneumatics and Hydraulics
15. Maintenance Technology
16. Internal Combustion Engines
17. Diesel Technology
18. Steam Technology
19. Refrigeration and Air Conditioning
20. Mechanical Power Laboratory
21. Pumps and Compressors
22. Heavy Equipment
23. Marine Equipment

24. Student Project, Special Project

25. Design Technology II (Group Project)

26. Mechanical Design, Design Problem, Design Technology I

27. Elements of Mechanisms, Mechanisms, Basic Mechanisms

28. Heat Transfer, Applied Heat Transfer

29. Dynamic of Machinery, Dynamics, Static and Dynamic Kinematics

30. Engine Drive Component Theory

General Names for Auxiliary Courses

1. Blue Print Reading
2. Drawing and Drafting, Technical Drawing
3. Electrical Power and Control, DC Circuits, Industrial Electricity, Electrical Technology, AC Circuits, Electro-Mechanical Devices
4. Instrumentation, Industrial Instrumentation, Process Instrumentation
5. Industrial Materials, Engineering Materials, and Production Process, Materials in Engineering Design, Material Engineering
6. Industrial Safety
7. Statics, Mechanics, Mechanics for Technicians, Technical Mechanics
8. Strength of Materials, Applied Strength of Materials
9. Metallurgy
10. Manufacturing Process, Manufacturing Methods, Manufacturing and Machine Tool Operations, Process Engineering Technology, Manufacturing Design
11. Quantity Controls, Manufacturing Control and Measurement, Numerical Control
12. Introduction to Plastics
13. Environmental Control
14. Machine Control

General Names for Mathematics Courses

1. Calculus
2. Mathematics, Technical Mathematics
3. Trigonometry, Plane Trigonometry
4. Algebra
5. Geometry
6. Analysis Geometry
7. Economic, Consumer Economics
8. Graphics, Engineering Graphics, Data Analyzing, Data Interpretation

General Names for Science Courses

1. Chemistry
2. Heat, Light, and Sound
3. Computer Science, Fortran
4. Physics, Technical Physics
5. Electricity, Magnetics

APPENDIX E

BROKEN-DOWN CURRICULUMS OF SELECTED ECPD MPT
AND THAILAND'S MPT PROGRAMS

Thailand's Technical Institutes

Summary	Credit Hours	Percent
Specialty	55	60.4
Auxiliary	16	17.6
Mathematics	6	6.6
Science	6	6.6
General Education	8	8.8
Total	91	100.0
Laboratory in Technical Course	19	20.1

Kansas State Technical Institute

Summary	Credit Hours	Percent
Specialty	17	25.8
Auxiliary	21	31.8
Mathematics	12	18.2
Science	7	10.6
General Education	9	13.6
Total	66	100.0
Laboratory in Technical Course	15	22.7

Midlands Technical College

Summary	Credit Hours	Percent
Specialty	35	29.0
Auxiliary	40	33.2
Mathematics	18	14.9
Science	8.5	7.1
General Education	19	15.8
Total	120.5	100.0
Laboratory in Technical Course	22	18.3

Nashville State Technical Institute

Summary	Credit Hours	Percent
Specialty	21	19.1
Auxiliary	39	35.5
Mathematics	15	13.6
Science	15	13.6
General Education	20	18.2
Total	110	100.0
Laboratory in Technical Course	17	15.5

Norwalk State Technical College

Summary	Credit Hours	Percent
Specialty	35	29.7
Auxiliary	30	25.4
Mathematics	19	16.1
Science	16	13.6
General Education	18	15.2
Total	118	100.0
Laboratory in Technical Course	25	21.2

Stark Technical College

Summary	Credit Hours	Percent
Specialty	31	28.7
Auxiliary	26	24.1
Mathematics	18	16.7
Science	13	12.0
General Education	20	18.5
Total	108	100.0
Laboratory in Technical Course	22	20.4

State Technical Institute at Knoxville

Summary	Credit Hours	Percent
Specialty	28	27.4
Auxiliary	32	31.4
Mathematics	14	13.7
Science	16	15.7
General Education	12	11.8
Total	102	100.0
Laboratory in Technical Course	19	18.6

State Technical Institute at Memphis

Summary	Credit Hours	Percent
Specialty	30	26.8
Auxiliary	29	25.9
Mathematics	16	14.3
Science	13	11.6
General Education	24	21.4
Total	112	100.0
Laboratory in Technical Course	18	16.1

Vermont Technical College

Summary	Credit Hours	Percent
Specialty	19	25.0
Auxiliary	25	32.9
Mathematics	13	17.1
Science	10	13.2
General Education	9	11.8
Total	76	100.0
Laboratory in Technical Course	11	14.5

Waterbury State Technical College

Summary	Credit Hours	Percent
Specialty	28	23.5
Auxiliary	32	26.9
Mathematics	25	21.0
Science	16	13.4
General Education	18	15.2
Total	119	100.0
Laboratory in Technical Course	20	16.8

Thames Valley State Technical College

Summary	Credit Hours	Percent
Specialty	24	21.2
Auxiliary	35	31.0
Mathematics	19	16.8
Science	16	14.2
General Education	19	16.8
Total	113	100.0
Laboratory in Technical Course	15	13.3

Trident Technical College

Summary	Credit Hours	Percent
Specialty	37	34.6
Auxiliary	27	25.2
Mathematics	18	16.8
Science	16	15.0
General Education	9	8.4
Total	107	100.0
Laboratory in Technical Course	15	14.0

Course Category Averages of Selected ECPD MPT

Curriculums in Percentages

Summary	Percent
Specialty	26.4
Auxiliary	29.4
Mathematics	16.3
Science	12.7
General Education	15.2
Total	100.0
Laboratory in Technical Course	17.4

VITA

Saksit Ariya

Candidate for the Degree of

Master of Science

Thesis: A COMPARISON OF MECHANICAL POWER TECHNOLOGY CURRICULUMS IN THE UNITED STATES AND THAILAND

Major Field: Technical Education

Biographical:

Personal Data: Born in Chieng Rai, Thailand, April 1, 1944, the son of Mr. Niphone and Mrs. Thida Ariya.

Education: Graduated from Bangkok Technical Institute, Bangkok, Thailand, 1967; received Bachelor of Engineering degree in Mechanical Engineering from King Mongkut's Institute of Technology, Thonburi, Thailand; completed requirements for the Master of Science degree with a major in Technical Education in May, 1980.

Professional Experience: Instructor of Mechanical Power Technology, Northern Technical Institute, Chiang Mai, Thailand, 1969-1978.