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This is to certify that the

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Evaluation of Basic Curriculum
For The U. S. Naval School, Civil
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EVALUATION OF THE BASIC CURRICULUM
FOR THE U. S. NAVAL SCHOOL, CIVIL
ENGINEER CORPS OFFICERS

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TABLE OF CONTENTS

<u>Chapter</u>	<u>Page</u>
I. INTRODUCTION	1
Civil Engineer Corps U. S. Navy.	1
U. S. Naval School CEC Officers.	2
Basic CEC Course	3
The Problem.	4
Need and Timeliness of this Study.	5
Summary.	6
II. ANALYSIS OF THE PROBLEM AND TECHNIQUES FOR SOLUTION	7
Factors of the Problem	7
Methods of Evaluation.	7
Design of the Questionnaire.	8
Summary.	9
III. REVIEW OF RELATED RESEARCH	11
Curriculum Building.	11
Engineering Education.	11
Questionnaire Surveys.	13
Summary.	13
IV. INTERPRETATION OF DATA	15
Basic CEC Course in General.	15
Orientation Section.	19
Administration Section	20
Shore Establishment Section.	21
Specialized Engineering Section.	22
Specific Subjects.	23
Improvements	25
CONCLUSIONS AND RECOMMENDATIONS	26
BIBLIOGRAPHY.	28
APPENDIX.	31

LIST OF TABLES

<u>Table</u>	<u>Page</u>
I. Tabulation of Answers to Item 8	18
II. Tabulation of Answers to Item 10.	19

CHAPTER I

INTRODUCTION

Civil Engineer Corps, U. S. Navy

The Civil Engineer Corps of the United States Navy is composed of officers of the Navy who are directly responsible for the design, construction, alteration, inspection, and maintenance of the public works and public utilities of the shore establishment of the Navy. The officers of the Civil Engineer Corps administer the work of the Bureau of Yards and Docks, one of the seven administrative divisions of the Navy Department. Admiral Ben Moreel, CEC, USN, the wartime Chief of the Bureau of Yards and Docks, described the members of the Civil Engineer Corps as engineers, planners, estimators, constructors, and analysts of shore facilities.

Civil Engineering duties in the Navy include construction and maintenance of shore facilities at such bases as Navy Shipyards, Air Stations, Ammunition Depots, Marine Barracks, Tank Farms, Hospitals, Submarine Bases, Radio Stations, Research Centers and others. Most of these duties require the professional application of a sound civil engineering education. In addition to the activities covered, officers of the Civil Engineer Corps while in charge of Naval Construction Battalions, commonly called "Seabees," construct and maintain base facilities in the combat zones. At the peak of World War II most of the 10,000 Civil Engineer Corps officers and 240,000 enlisted men were engaged in Seabee duties.

U. S. Naval School, Civil Engineer Corps Officers

During World War II it was necessary to train large numbers of newly commissioned naval officers in naval administrative procedures, and the specialized civil engineering required for construction and maintenance of Naval Bases. The first program to accomplish this training was established at Camp Allen, Virginia. This course was primarily for officers who were going into the early naval construction battalions. In 1943 this training course, including officer indoctrination, was moved to Camp Perry, Williamsburg, Virginia. In May 1943 a public works course was established to provide training for officers assigned to public works duty in the naval shore establishment.

In May 1944 the entire officers training program was moved from Camp Perry to Camp Endicott, Davisville, Rhode Island, and the curriculum was re-organized and a closer liaison was established with the Bureau of Naval Personnel and the Bureau of Yards and Docks. With this move all Civil Engineer Corps officer training was located at Camp Endicott except for the public works course which remained at Norfolk, Virginia. In May 1945 the public works course was moved from Norfolk to Camp Endicott and all Civil Engineer Corps officer training was consolidated into one school. This school was moved from Davisville, Rhode Island to Port Hueneme in September 1946 and was placed under the management control of the Bureau of Naval Personnel. The present U. S. Naval School, Civil Engineer Corps Officers, is a subordinate command of the Naval Con-

struction Battalion Center and is an activity of the Eleventh Naval District. The school is under the direction of a Civil Engineer Corps officer designated as the officer-in-charge.

The post-war plans for an expanded regular Navy dictated the decision to make the Civil Engineer Corps Officers School a permanent post-war organization. This was necessary to train future junior Civil Engineer Corps officers procured from the Naval Academy, civilian life or transfers from the Line for their specialized duties in the Navy. The school is presently operating two classes of the Basic CEC Course each year and graduating approximately fifty officers per year for Civil Engineer Corps billets. The course is presently sixteen weeks in length.

Basic CEC Course

The catalog of information for the CEC Officers School defines the purpose of the course as: (21)

- (1) Providing the officers instruction in naval orientation subjects to acquaint them with the Department of Defense and with the organization, procedure and customs of the naval service.
- (2) Presenting the specialized procedures of the Bureau of Yards and Docks in accomplishing its responsibilities in the Naval Establishment, both in continental United States and at Advanced Bases.

- (3) Providing instruction and other assistance to the officers to increase their administrative and engineering knowledge.

The course is divided into four areas. (22)

- (1) Naval Orientation.

The orientation required by a naval officer to indoctrinate him into the military functions of his rank.

- (2) Administration.

The administrative procedures utilized by CEC officers in the execution of their duties.

- (3) Shore Establishments, Structures, Facilities and Utilities.

Covering Civil Engineering as applied to the naval activities.

- (4) Specialized Engineering.

Covering Naval Construction Battalion duties, Advanced Base design and construction plus cold weather and tropical engineering.

Students selected to attend the course are either graduate engineers or have extensive engineering experience.

The Problem

The Mission of the Civil Engineer Corps Officers School is stated as follows:

"To provide courses of instruction for officers of the Civil Engineer Corps, Regular and Reserve, through which they may become acquainted with the specialized administrative and technical engineering information, over and above their knowledge of engineering as applied to general practice in civilian use, necessary to equip them for duty in billets assignable to them in the Navy." (24)

To accomplish this mission the "Basic CEC Course" of sixteen weeks was organized at the Civil Engineer Corps Officers School. This course has been in operation with continuing modification since May 1945. Some modification has been of minor nature, some of more major scope. It was the purpose of this study to determine if the present course curriculum adequately fulfilled the mission of the school by providing junior Civil Engineer Corps officers with satisfactory training.

Need and Timeliness of this Study

There is a continuing need in each military activity to determine if that activity is adequately fulfilling its mission. It is felt that the investigation undertaken by this study is timely since significant numbers of graduates of the school are now in the active performance of their naval duties. These graduates are now available for an evaluation of their training. Prior to this time, the population available for study was too small to lead to conclusive results. The results obtained from this study may be utilized in making adjustments and changes to the curriculum of the Basic CEC Course.

Summary

The Civil Engineer Corps of the Navy is responsible for the design, construction, alteration, inspection and maintenance of the public works and public utilities of the shore establishment of the Navy.

The U. S. Naval School, Civil Engineer Corps Officers, is assigned the mission of providing junior officers of the Civil Engineer Corps with training necessary to equip them for duty in the Navy.

The problem as investigated by the study was to determine if the curriculum of the Basic CEC Course adequately fulfilled this mission.

CHAPTER II

ANALYSIS OF THE PROBLEM AND TECHNIQUE FOR SOLUTION

Factors of the Problem

In analyzing the problem of how well the school was accomplishing its mission it was considered that the success of the school was directly related to the adequacy of the curriculum. This conclusion was supported by Morris (15) and Weil (26) in their writings. In evaluating a curriculum the quality and quantity of instructions must be considered. The initial consideration, however, should be to determine if the curriculum is satisfactory. In discussing the planning of a course, Morris (15) emphasized the importance of a good curriculum as compared to overall instructional efficiency. For the purposes of this study it was decided to limit the problem to a study of the curriculum of the Basic CEC Course. The question of quality of instruction was considered only as it related directly to curriculum content.

Methods of Evaluation

Various methods of evaluating curriculums were studied. Klausmeier and Swanson (1) outlined various methods of evaluation. Stuit (20) considered the problem in his studies.

Based on type of course under study and considering the areas to be covered it was decided that the questionnaire survey method of evaluation would be most satisfactory. This method was found to be satisfactory by several authors. Baker (1), Grim (6), Koos (11) and Romine (16) all reported the questionnaire as a satisfactory method of evaluation of a curriculum.

In the use of a questionnaire study, the group to be questioned is most important. Since the establishment of the CEC Officers School at Port Hueneme over 200 students have been graduated to duty in Naval activities. This group has now had from one to five years to determine the effectiveness of the training received. Therefore, it was to this group that the questionnaire was addressed.

Design of the Questionnaire

The problem at hand was to produce a questionnaire which covered all the areas of the Basic CEC curriculum and yet could be answered within a reasonable time. In designing the questionnaire three main sections were considered.

- (1) General information about course.
- (2) Specific information concerning subjects within the course.
- (3) Specific information concerning changes or improvements desired.

Questions were constructed for each section of the questionnaire and tried on a pilot group. The pilot group were 12 previous graduates of the Basic CEC Course stationed at Naval Construction Battalion Center, Port Hueneme, California. A group of desirable questions finally evolved from these preliminary experiments. It was desired to produce a questionnaire that would require less than 30 minutes to complete. Koos (11) writes of the importance of making the questionnaire of a length that the recipient will have a willing-

ness to complete it. The time of completion for the final questionnaire was from 20 to 30 minutes.

In sections where multiple choice answers were available, these choices were limited to five. It was felt fewer choices would not have given the range desired. Larger number of choices would have made selection difficult and increased the time required for completion.

Koos (11) and Howell (9) mentioned the significance of a forwarding letter with the questionnaire. They cited cases to indicate that the quality and quantity of responses would increase if a forwarding letter were used. A forwarding letter was included with the questionnaires sent out in this study.

207 questionnaires were mailed to previous graduates and 161 satisfactorily completed responses were received. This 78% return compared favorably with other similar studies in which the average response was only about 50%. A questionnaire form together with the forwarding letter (27) was included in the appendix of this study.

Summary

It was determined to limit the scope of this problem to a study of the curriculum of the Basic CEC Course. It was considered that a questionnaire would be a satisfactory means of evaluating the curriculum.

The questionnaire was designed in three main sections:

- (1) General information.

- (2) Specific information concerning subjects.
- (3) Specific information concerning changes or improvements.

CHAPTER III

REVIEW OF RELATED RESEARCH

In the review of related research carried out for this study, materials in the areas of curriculum building, engineering education and questionnaire surveys were investigated. The general subject of educational philosophy was explored only so far as it was related to post-graduate engineering education.

Curriculum Building

Several studies indicated the difficulties of building a satisfactory engineering curriculum. Weil (26) considered this problem and investigated the question of specialization, major fields and increasing the length of standard courses. Grim (6) outlined certain requirements to be met in the design of an engineering curriculum. The United States Navy's Chief of Naval Personnel (25) in discussing curriculum development raised the question of the amounts of different items to teach. He considered the question of "how much theory" and "how much practice." Morris (15) in studying the planning of a course describes means of arranging a schedule of classes to meet various training plans.

Engineering Education

Finch (5) wrote of trends in engineering education and expressed his idea concerning the relative importance of fundamentals versus practice. Sackett (17) in his study, indicated the relative weight of different factors in influencing students to study engineering.

He mentioned the generally accepted opinion that engineering education was good education. The Department of the Navy (Bureau of Naval Personnel) (23) stated that the Navy's training program was designed to insure the efficient employment of modern naval materials and principles. This manual further stated that the Navy felt that officers required special training after completion of their regular college courses. Mills (14) reported the importance of joining interest and ability to produce success in engineering. The Engineers Joint Council (4) stated that the engineer was very important to the military and that 95% of engineers in the military were correctly assigned to work in their profession. Horton (8) made a follow-up study on the career of engineering students after graduation to determine the value of their education. Stewart (10) in his writings offered advice to students in engineering. He reported the ability to do mathematics a prime requisite. He also commented on the importance of public relations. Morris (15) in his manual for engineering instructors, emphasized the importance of good administration to the success of an engineering school. He discussed the various phases of planning a course and a schedule. Hammond (7) considered the factors contributing to good teaching. Baker (1) felt that engineering education should emphasize management instead of technical fields. The importance of post-graduate education was studied by Lenville and McEachron (12). Stuit in his studies for the Navy Department (20) pointed out the importance of the learner's opinion as to the quality of the course of instruction.

Questionnaire Surveys

Questionnaire Surveys have been extensively used in educational research. Koos (11) reported the two divisions in education most commonly studied by questionnaire surveys were administration and curriculum. He further mentioned the usefulness of questionnaires to explore curriculum content. Corrigan (2) described the use of questionnaires in a study on Chemical Engineering curriculum. Romine (16) set forth criteria for a better questionnaire. McGrath (13) outlined the use of a questionnaire survey to evaluate student teacher training. Klausmaier and Swanson (10) reported a questionnaire method of evaluating a course in educational psychology. Schoonover and Horrocks (18) described how a questionnaire study aided a teacher in evaluating his instructions. Howell (9) gave certain requirements for a satisfactory questionnaire response. He said questionnaires:

- (a) Should be on good paper.
- (b) Should have a return envelope.
- (c) Should have plenty of room for answers.
- (d) Should have a forwarding letter.

Summary

The review of related research revealed considerable material available for study in the fields of curriculum building, engineering education and questionnaire surveys. Some difference of opinion was expressed concerning the length of engineering courses. Differences were noted concerning the question of specialization. Authors

agreed there must be both theory and practice in a satisfactory course. Some authors pointed out the importance of training for management and personnel administration in engineering education. One author mentioned the importance of the learner's opinion of the quality of his education.

Questionnaire surveys were reported by several authors to be a successful method to evaluate engineering curricula.

CHAPTER IV

INTERPRETATION OF DATA

The purpose of the questionnaire survey was to evaluate the curriculum content of the Basic Civil Engineer Corps Course. The questionnaire was designed to determine the previous graduate's opinion as to how effectively the subjects presented prepared them for their Navy billets. The tabulations were made for each item of the questionnaire and are presented in the following sections.

Basic CEC Course in General

Under this section were questionnaire items 1 through 8 and item 10 which dealt with the course more or less in general. Each item except 8 and 10 gave five choices. The tabulation is given showing the number of graduates who selected each choice. Items 8 and 10 were handled separately since they involved a different technique.

"1. In the light of what you now know about the duties of CEC officers do you agree that a CEC Officers course is necessary."

Choice Selected

(a) Strongly agree	105
(b) Agree	52
(c) Doubtful	2
(d) Disagree	0
(e) Disagree strongly	0
(f) No opinion	1

"2. What do you think about the general value and usefulness of the CEC Officers course you attended?"

- | | |
|---|----|
| (a) Half or less of it was important
and useful. | 29 |
| (b) More than half of it was important
and useful. | 98 |
| (c) All or most of it was important and
useful. | 32 |
| (d) No opinion. | 1 |

"3. Which part of your career in the Corps should your training in the Basic CEC Officers Course be emphasizing?"

- | | |
|----------------------|-----|
| (a) First 20 years | 12 |
| (b) First 10 years | 131 |
| (c) First 5 years | 16 |
| (d) First year only | 0 |
| (e) 30 years or more | 0 |
| (f) No opinion | 1 |

"4. Considering the material to be covered, how do you feel about the present course duration of 16 weeks?"

- | | |
|--------------------|-----|
| (a) About right | 103 |
| (b) Much too long | 0 |
| (c) Too long | 24 |
| (d) Much too short | 3 |
| (e) Too short | 27 |
| (f) No opinion | 3 |

"5. How many of your instructors were able to put across successfully what they were trying to teach?"

(a) All or most of them	56
(b) About half of them	74
(c) Very few of them	26
(d) No opinion	4

"6. Was the material studied in the classroom out of date or different from that used in the field?"

(a) Always	1
(b) Frequently	26
(c) Occasionally	83
(d) Seldom	45
(e) Never	2
(f) No opinion	3

"7. Do you feel there was sufficient practical engineering field work in your course?"

(a) Too much	14
(b) About the right amount	50
(c) Far too much	3
(d) Too little	73
(e) Far too little	12
(f) No opinion	8

Item 8 while dealing with the course in general was designed to measure the students' opinion of the emphasis of the various sections of the course. Item 8 was quoted as: "Indicate by (f)

those areas in which you would increase emphasis and by (-) those areas which you would decrease emphasis. Leave blank those you consider to have been correctly emphasized." The tabulation of item 8 was shown in Table I.

TABLE I
TABULATION OF ANSWERS TO ITEM 8

	Increase Emphasis	Decrease Emphasis	No Change
Naval Orientation	19	61	80
Public Works Administration	112	14	34
Naval Shore Establishment	53	39	68
Advanced Bases, Naval Construction Forces and Specialized Engineering	95	26	49

Table I indicated a significant opinion that the emphasis on "Administration" and "Specialized Engineering" should be increased. There was a less significant opinion that the emphasis on "Orientation" should be decreased.

Item 10 dealt with the course in general by requesting opinions as to certain broad phases of instruction.

Item 10 was quoted as: "Please list your opinion by checking a plus (+) for agreement and a minus (-) for disagreement. Leave blank if no opinion." (Questions were shown in the tabulation.)

The tabulation of the results of item 10 were shown in Table II.

TABLE II
TABULATION OF ANSWERS TO ITEM 10

	Agree	Disagree	No Opinion
(a) Increase the number of field trips.	82	42	36
(b) Spend more time on subjects taught at the CB enlisted schools.	75	54	31
(c) Rifle and pistol range training should be included in the course.	91	53	16
(d) Attend special amphibious training course at the Naval Amphibious Training Center.	96	27	37
(e) Having visiting senior CEC Officers address the class at least once a month.	118	14	28

Table II indicated general agreement with all topics under consideration in item 10.

Orientation Section

The first portion of item 9 of the questionnaire was concerned with the Orientation section of the Basic CEC curriculum. This item was quoted as: "To what extent do you consider the following subjects important in the Basic CEC Officers Course? Rate according to this scale: (4) Very important, (3) Considerably important, (2) Limited importance, (1) Not important."

A tabulation of the importance attached to each subject was as follows:

<u>Orientation</u>	
(a) Naval Orientation	2.76
(b) Uniform Regulations	2.40

(c) Naval Procedures	3.15
(d) Naval Law	3.04
(e) Naval Leadership	3.24
(f) Naval Current Events	2.80
(g) Drill and Physical Training	2.11

The subjects of "Drill and Physical Training" and "Uniform Regulations" appeared to be rated as of only limited importance.

Administration Section

The second portion of Item 9 of the questionnaire was concerned with the Administration Section of the curriculum. This item was quoted as: "To what extent do you consider the following subjects important in the Basic CEC Course?" Ratings were the same as for the Orientation Section above.

A tabulation of the importance attached to each subject was as follows:

Administration

(a) Bureau of Yards and Docks	3.22
(b) Naval Station Public Works	3.64
(c) Naval Correspondence	3.47
(d) Inspections and Reports	3.06
(e) Civilian Personnel Administration	3.33
(f) Supplies and Material Management	3.04
(g) Financial Management	3.20
(h) Initiation of New Projects	3.18
(i) Contract Administration	3.19

(j) Construction by Station Forces	3.25
(k) Real Estate	2.37
(l) Housing and Public Quarters	3.08
(m) Work Measurement Program	2.46
(n) Safety Program	2.72
(o) Disaster Planning	2.94
(p) Public Relations	2.66

The subjects of "Real Estate" and "Work Measurement Program" appeared to be rated as of only limited importance.

Shore Establishment Section

The third portion of Item 9 was concerned with the Shore Establishment Section of the curriculum. This item was quoted as: "To what extent do you consider the following subjects important in the Basic CEC Course?" Ratings were the same as for the Orientation Section.

Tabulation of the importance attached to each subject was as follows:

Shore Establishment

(a) Introduction to Shore Establishment	2.99
(b) Personnel Facilities	2.73
(c) Industrial Facilities	2.74
(d) Waterfront Facilities	2.80
(e) Aviation Facilities	2.71
(f) Ordnance Facilities	2.60

(g) Supply Facilities	2.65
(h) Electrical Systems	2.95
(i) Power Plants	3.05
(j) Distribution Systems	3.13
(k) Heating-Ventilating	2.80
(l) Water Supply	3.10
(m) Materials and Processes	2.84
(n) Automotive Transportation	3.34
(o) Rail Transportation	2.32
(p) Weight Handling Equipment	3.07
(q) Construction Equipment	2.90
(r) Fire Protection	2.89

The subject of "Rail Transportation" appeared to be rated as of only limited importance.

Specialized Engineering Section

The fourth portion of Item 9 was concerned with the Specialized Engineering Section of the curriculum. The item was quoted as: "To what extent do you consider the following subjects important in the Basic CEC Course?" Ratings were the same as for the Orientation Section.

Tabulation of the importance attached to each subject was as follows:

Specialized Engineering

(a) Mission of Advanced Bases	3.04
-------------------------------	------

(b) Logistics	2.99
(c) Naval Construction Forces	3.30
(d) Advanced Base Planning	2.91
(e) Advanced Base Construction	3.06
(f) Harbor Defense	2.41
(g) Cold Weather Engineering	2.65
(h) Desert Engineering	3.00
(i) Radiological Decontamination	2.57
(j) Chemical Decontamination	3.24
(k) Biological Decontamination	2.94
(l) Surveying	2.86
(m) Diving	2.29
(n) Welding	2.42
(o) Paints	2.22

The subjects of "Harbor Defense," "Diving," "Welding," and "Paints" appeared to be rated as of only limited importance.

Specific Subjects

Item 11 of the questionnaire was concerned with the subjects that were inadequately covered. This item was quoted as: "Name any subjects taught in your course which were inadequately covered considering their importance."

The following subjects were mentioned more than ten times in the 161 completed questionnaires returned: (The number of times mentioned follows each subject in parenthesis.)

Civilian Personnel Administration (36)
Financial Management (33)
Public Works Administration and Operation (33)
Correspondence (22)
Contract Administration (21)
Enlisted Personnel Administration (20)
Automotive Transportation (14)
Naval Law (11)

Item 12 was concerned with the subjects that were over-emphasized. The item was quoted as: "Name subjects taught in your course which were over-emphasized beyond their importance."

The following subjects were mentioned more than ten times:

Naval Orientation (22)
Electrical Engineering (18)
Shore Establishment Facilities (13)
Civil Engineering (Under-graduate type subjects) (13)
Advance Base Planning (11)

Item 13 was designed to determine if additional subjects should be added to the course. This item was quoted as: "Name any additional subjects or materials which you feel should have been included in your course."

The only subject mentioned more than ten times was:

Naval Personnel Administration (11)

Improvements

Item 114 asked for general comments for the improvement of the Basic CEC Course. In response to this question the following suggestions were mentioned more than ten times:

Provide better instructional methods (33)

Teach more: Financial Management (12)

Public Works Administration (23)

Naval Orientation (11)

Teach less: Under-graduate engineering (20)

CONCLUSIONS AND RECOMMENDATIONS

The solution to the problem investigated by this study was based on a questionnaire survey. The survey provided good response from the previous graduates contacted. 78% returned questionnaires satisfactorily completed. The information taken from these completed questionnaires was nearly 100% useful and valuable. A conclusion of this study was that the questionnaire survey was a satisfactory method for curriculum evaluation.

The evaluation as interpreted in Chapter IV clearly indicated a recognized need for a Basic CEC Course. The evaluation showed the present curriculum to be reasonably adequate as to overall content, distribution and subject emphasis. There were indicated, however, certain changes and improvements that would increase the value of the course in the opinion of previous graduates.

This study was primarily concerned with curriculum evaluation. Instruction was considered only as it affected curriculum content. Items 5 and 14 in the study indicated that while instructional methods were satisfactory there was still room for improvement.

Future changes in the Basic CEC Course should consider the change in emphasis indicated by Table II, Chapter IV. This would mean increasing the emphasis on Administration and Specialized Engineering and decreasing the emphasis on Orientation. The individual subjects to increase or decrease emphasis could be those discussed under items 11 and 12 in the interpretation of Chapter IV. Items in Table II should be considered for addition to the

course. The subjects rated as of only limited importance should be considered for removal from the course or reduction in time allotted. Those rated as of limited importance were:

Drill and Physical Training

Uniform Regulations

Real Estate

Work Measurement Program

Rail Transportation

Harbor Defense

Diving

Welding

Paints

Item 13 indicated that the subject of Naval Personnel Administration should be considered for addition to the course.

It is recommended that a follow-up study in the form of a later questionnaire survey be made to determine if the findings of this study are conclusive and if the changes proposed produce desired results.

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APPENDIX

C O P Y

DEPARTMENT OF THE NAVY
Bureau of Naval Personnel
Washington 25, D. C.

In reply refer to
Pers-C1223-bs
6 July 1950

From: Chief of Naval Personnel

To: Officer-in-Charge,
U. S. Naval School
Civil Engineer Corps Officers
Naval Construction Battalion Center
Port Hueneme, California

Subj: Approved "Mission, Tasks and Standards of Performance,"
U. S. Naval School, Civil Engineer Corps Officers, Port
Hueneme, California

Ref: (a) BuPers ltr, Pers-4221-lra of 18 June 1948 and en-
closure thereto
(b) CECOS ltr, NTL-59/A3-2 over 41/mlk, Ser. 524 of
18 May 1950 and enclosure thereto

Encl: (1) Four copies of Approved Mission, Tasks and Standards
of Performance, CECOS, Port Hueneme, Calif.

1. Reference (a) is hereby cancelled.

2. Enclosure (1) is approved as the statement of the "Mission,
Tasks and Standards of Performance," U. S. Naval School, Civil
Engineer Corps Officers, Port Hueneme, California.

G. C. TOWNER
By direction

Copy to:

ComELEVEN (with 2 copies of Encl.(1))

CO, USN CB Center, Pt. Hueneme (with 2 copies of Encl.(1))

BuDocks (with 2 copies of Encl.(1))

C O P Y

U. S. NAVAL SCHOOL, CEC OFFICERS, PORT HUENEME, CALIF.
STATEMENT OF MISSIONS, TASKS AND STANDARDS OF PERFORMANCE

MISSION: To provide courses of instruction for officers of the CEC, Regular and Reserve, through which they may become acquainted with the specialized administrative and technical engineering information, over and above their knowledge of engineering as applied to general practice in civilian use, necessary to equip them for duty in billets assignable to them in the Navy.

To perform such other functions relating to training and personnel administration of naval personnel as may be assigned.

- TASKS:
1. To conduct a suitable course covering Naval Orientation, Public Works Training, and Construction Battalion Training for regular CEC officers who are ordered to this activity.
 2. To conduct a suitable course covering disaster relief planning for officers of the Armed Forces and selected civilians.
 3. To conduct suitable courses for CEC reserve officers to bring them up to date on naval organization and procedures, to present pertinent subjects pertaining to disaster relief planning and operation, to present such material as may be necessary to assist them to more effectively perform their duties with reserve units, and to acquaint them with other duties of CEC officers.
 4. To perform such additional duties in connection with the training and personnel administration of naval personnel as may be assigned. Examples: Preparation of manuals, correspondence courses, examinations for promotion of CEC officers, etc.

THE MISSION OF THE U. S. NAVAL SCHOOL, CEC OFFICERS, WILL BE CONSIDERED WELL DONE WHEN:

1. CEC officers (including officers newly procured from civil life, other staff corps and the line) graduating from the school, have been adequately indoctrinated into the Corps and have knowledge of the broad field of the Corps' work and the specialized information concerning Bureau of Yards and Docks policies, plans and procedures such as will permit them to be useful and efficient assistants to a more senior officer performing duties pertaining to matters under the cognizance of the Bureau of Yards and Docks.

2. C&C reserve officers have been given training courses that have renewed and increased their interest in BuDocks activities and responsibilities, have made the individual officer more valuable to his local Reserve Unit composed of both officer and enlisted personnel, and have given the individual officer a desire to continue to improve his usefulness to the Navy, especially in time of emergency.

3. Officers of the Armed Forces and selected civilians have been given a course of instruction which would enable them to prepare or be consultants on a disaster relief plan for their activities, and thus prepare them to operate efficiently and rapidly to alleviate the damage and suffering following a catastrophe.

4. Such duties as may be assigned by proper authorities have been completed in an efficient and satisfactory manner.

ENCLOSURE (1)

**NAVAL SCHOOL , C.E.C.OFFICERS
CATALOG OF INFORMATION**



N.C.B.C., PORT HUENEME , CALIFORNIA

11ND P-89 (Rev. 10-50)

C O P Y

U. S. NAVAL SCHOOL
CIVIL ENGINEER CORPS OFFICERS
Naval Construction Battalion Center
Port Hueneme, California

Revised
23 Feb 1951

CURRICULUM - FOR BASIC CEC COURSE
PART I
ORIENTATION

	<u>Hours</u>	<u>Instructor</u>	<u>Alt.</u>
1. Naval Orientation History, Rating Structure, Amphibious Warfare, Customs and Terms	8	Benton	Weeks
2. Organization for National Security Department of Defense, Depart- ment of the Navy, Inter-Rela- tionship within the Shore Es- tablishment	3	Ryan	Benton
3. Uniform Regulations USN Uniform Regulations NavPers 15665	2	Jordan	Wills
4. Naval Procedure Pay, Allowances, Travel, Leave, Liberty, Shipment of Household Effects, etc.	4	Hardy	Wills
5. Leadership Individual Differences, Concepts of Leadership, Application of Group Discussion Methods, Selec- tions, Motivation and Discipline, Training, Application of Training Methods, Organization and Manage- ment, Leadership versus Command, Leadership Techniques.	10	Wills	Benton
6. Current Events New Naval Developments, New Legislation proposed or enacted, Developments in other Services, Developments in Civilian Agencies	4	Wills	Weeks

	<u>Hours</u>	<u>Instructor</u>	<u>Alt.</u>
7. Military Law Review A.G.N.; Discuss P.L. 506 (Uniform Code)	4	Graessle	Benton
8. Naval Regulations A.G.N., Navy Regulations and General Orders	2	Hardy	Benton
9. Naval Correspondence Principles of Letter Writing; Construction of Letters, Memo- randa, Endorsements, etc.	4	Graessle	Weeks
10. Physical Training A program to improve the stu- dents' physical fitness, con- sisting mostly of organized recreational sports activities.	15	Weeks	Benton
11. Military Drill Obeying and Giving Drill Com- mands	15	Benton	Hardy
TOTAL HOURS		71	

PART II
ADMINISTRATION

1. Bureau of Yards and Docks History, Organization, Responsi- bilities, Definition of Terms, Relationships with other Govern- ment Agencies, Status and Duties of CEC Officers.	12	Conahey	Ryan
2. Field Activities of BuY&D Directors of Overseas Areas, District CE, District PWO, OinCC, ROinCC, NCBC, ABD, NAVSCON, CECOS, NavCERELab.	6	Conahey	Ryan
3. Naval Station Public Works Organization and Duties at: Shipyards, Air Stations, Marine Corps Facilities, others.	10	Conahey	Ryan
4. Supplies and Materials Management Procurement, Inspection, Survey, Salvage, Shops Stores.	4	Conahey	Ryan

	<u>Hours</u>	<u>Instructor</u>	<u>Alt.</u>
5. Financial Management Budget, Appropriations, Job Orders, Allotments, Work Orders, Cost Keeping, Obli- gations and Expenditures.	14	Conahey	Ryan
6. Initiation of New Projects Station Development Board, Local Station Development Board, Shore Station Develop- ment Board, Facilities Review Board.	3	Conahey	Ryan
7. Contracts Policy, CPFF, Lump Sum, Unit Price, Short Form, Informal, Negotiations, Bids, Admini- stration and Reports.	9	Conahey	Ryan
8. Specifications and Contract Preparation Principles, Standard Specifi- cations, NavDocks Form 129e, Informal and Short Form Speci- fications, Preparing Short Form Specifications.	5	Ryan	Conahey
9. Technical Reports Fundamentals, Current Practice, Preparation and Discussion of Engineering Report.	4	Foster	Benton
10. Inspections and Reports Navy Report Program, Annual Inspection Report, Other Major Inspections, Methods and Re- lated Reports, Preparation of Field Inspection Report.	6	Ryan	Conahey
11. Civilian Personnel Administration Navy Civilian Employees, Civil Service Organization and Methods, OIR Programs.	6	Conahey	Ryan
12. Real Estate NavDocks P-20	3	Conahey	Ryan

	<u>Hours</u>	<u>Instructor</u>	<u>Alt.</u>
13. Housing and Public Quarters MOQs, EMQs, Transient Personnel Quarters, Other Government Quarters, Building Title VIII, Maintenance, Cost Records, Rent Collection, etc.	4	Conahey	Ryan
14. Safety Procedures, Duties and Authority of Safety Organization.	2	Foster	Ryan
15. Disaster Planning History and Present Status of Civil Defense and Disaster Re- lief Planning, Current Naval Station Disaster Plans.	4	Ryan	Conahey
16. Public Relations Responsibility, Organizations, Methods, Student Problem.	2	Ryan	Jordan
TOTAL HOURS		90	

PART III
SHORE ESTABLISHMENTS, STRUCTURES, FACILITIES AND UTILITIES

1. Introduction to Shore Estab- lishment Naval Bases, Shipyards, Stations, Operating Bases, Facilities, etc.	2	Benton	Conahey
2. Personnel Facilities Planning and Design, Barracks, Hospitals, Offices, Recreational and Service, Finish, Furniture and Maintenance.	6	Franklin	Burkart
3. Industrial Facilities Shops, Shop Groups, Types of Buildings, Location, and Special Features.	4	Foster	Franklin
4. Waterfront Facilities Channels, Anchorages, Bulkhead Lines, Pierhead Lines, Break- waters, Jetties, Quaywalls, Sea Walls, Groins, Moles, Dikes, Re- vetments, Levees, Training Walls, Dunes, Dry Docks, Marine Railways, Shipbuilding Ways, Silting, Beach Erosion, Dredging, Filling, Pile Driving, Maintenance.	10	Dunham	Conahey

	<u>Hours</u>	<u>Instructor</u>	<u>Alt.</u>
5. Aviation Facilities Types, Organization, Planning and Design Criteria, Public Works Maintenance Problems.	4	Burkart	Franklin
6. Ordnance Facilities Types, Organization, Planning and Design Criteria, Public Works Maintenance Problems.	4	Burkart	Franklin
7. Supply Facilities Types, Organization, Planning and Design Criteria, Public Works Maintenance Problems.	4	Burkart	Franklin
8. Miscellaneous Facilities Roads, Walks and Areas, Bridges, Water Systems.	4	Franklin	Conahey
9. Electrical Systems Basic Electricity, Power, Com- munication, Machinery, Power Control and Purchase.	6	Franklin	Foster
10. Power Plants Types, Equipment, Maintenance, Safety Practices, Characteristics, Fuels and Combustion.	8	Foster	Franklin
11. Distribution Systems Fresh and Salt Water, Steam, Air, Gas, Oxygen-Acetylene, and various types of Liquid Fuels.	3	Foster	Franklin
12. Heating, Air Conditioning and Regrigeration Design, Capacity and Operation of the Various types and methods used in the Navy.	6	Foster	Franklin
13. Water Supply, Sewerage Systems and Waste Disposal Standards, Treatment, Distribu- tion and Storage.	8	Burkart	Franklin
14. Specifications for Materials Definitions and descriptions of terms, Written material specifi- cations.	2	Franklin	Benton

	<u>Hours</u>	<u>Instructor</u>	<u>Alt.</u>
15. Structural Steel Production of Structural Shapes, Standards of Design.	4	Franklin	Conahey
16. Structural Timber Grading Rules, Standards of Design, Modern Developments.	4	Franklin	Burkart
17. Concrete Composition, Mixing, Admixtures, Pouring, Forms, Tests.	4	Conahey	Franklin
18. Miscellaneous Materials Explosives and Paints, Other Construction Materials.	2	Franklin	Burkart
19. Structural Design Standards of Design and Loading, Wind Loads, Seismic Loads, Live and Dead Utility Loads.	4	Franklin	Burkart
20. Soil Stabilization & Pavements Classification, Sampling; Mechan- ical, Bituminous and Portland Cement Stabilization; Bituminous and Concrete Pavements; Main- tenance.	4	Burkart	Franklin
21. Automotive Transportation Authority, Policy and Procedures used in Administration and Opera- tion, Organization, Operation and Maintenance Procedures.	8	Foster	Ryan
22. Rail Transportation Function and Extent of Railway Transportation in the Navy; Types, Assignment, Regulations and Operation.	2	Foster	Conahey
23. Material & Weight Handling Equip- ment Bridge, Portal, Gantry, Semi- Gantry Cranes; Derricks, Hoists; Leads, Maintenance and Safety Rules.	20	Dunham	Weeks

	<u>Hours</u>	<u>Instructor</u>	<u>Alt.</u>
24. Construction Equipment Clearing and Grubbing Equipment, Prime Earth Movers, Earth Surfacing and Compaction Equipment, Quarry Equipment, Air Compressors and Tools, Pumps, Woodworking and Shop Equipment.	30	Dunham	Weeks
25. Fire Protection and Prevention Responsibility, Organization and Methods for Fire P & P; Magnitude, Causes, Levels and Degrees of Protection; Bills, Inspections and Facilities.	6	Ryan	Foster
TOTAL HOURS	156		

PART IV
SPECIALIZED ENGINEERING

1. Mission of Advanced Bases History of Advanced Bases, Strategic Considerations, Theater Staff Planning, Base Development Plans.	4	Wills	Dunham
2. Naval Construction Forces History, Types in WW II, Organization for Combat and Construction.	4	Burkart	Dunham
3. Advanced Base Functional Components History, Description, Groups, Units, Personnel, and Assemblies and Components.	4	Dunham	Franklin
4. Logistics Elements, Demand, Efficiency, History, Procurement, Lead Time, Distribution, Planning and Execution.	4	Dunham	Wills
5. Advanced Base Planning Elements, Purpose, Rules, Planning Flow, Current Planning, Impetus, Concept, Study.	30	Dunham	Franklin

	<u>Hours</u>	<u>Instructor</u>	<u>Alt.</u>
6. Advanced Base Construction Standard Functional Component Buildings, Pile Boats, Saw Mill Operations.	23	Franklin	Burkart
7. Advanced Base Water Supply Sources, Development, Purifica- tion, Distillation and Well Driving Equipment.	8	Burkart	Franklin
8. Advanced Base Waterfront Facilities Pontoons, Barges, Warping Tugs, Drydocks.	2	Franklin	Burkart
9. Advanced Base Airfield Con- struction Planning, Site Selection, Pave- ment Types, Cold Weather Zone Problems.	2	Burkart	Franklin
10. Advanced Base Harbor Defense Defense Areas, Detection Equip- ment and Functional Components.	2	Graessle	Marsh
11. Cold Weather Engineering Introduction, Personnel, Logis- tics and Supply, Equipment, and Construction.	6	Graessle	Weeks
12. Tropical Engineering Tropical Regions, Conditions en- countered, Adaptation of Conven- tional Engineering Methods.	2	Weeks	Graessle
13. Atomic Warfare Nuclear Physics, Effects of Atomic Weapons, Detection, De- contamination and Protection.	8	Burkart	Graessle
14. Chemical Warfare History, Classification, Des- cription, Identification, Symptoms, Detection, Decon- tamination, Protective Clothing and Shelters.	4	Jordan	Graessle
15. Biological Warfare Agents, Dispersal, Germicides, Decontamination, Protection and Shelters.	2	Marsh	Jordan

	<u>Hours</u>	<u>Instructor</u>	<u>Alt.</u>
16. Site Surveying Field Trip involving Surveying and Mapping of a large hilly area.	3	Dunham	Graessle
TOTAL HOURS	108		

MISCELLANEOUS

Officer in Charge - Administrative Time	78		
Tour of Inyokern	14		
Tour of So. Calif. Naval Facilities	35		
TOTAL HOURS	127		
GRAND TOTAL	552		

SAMPLE

8 February 1951

LT A. B. SEE, CEC, USN
U. S. Naval Station
Chicago, Illinois

Dear LT See:

As you are a graduate of the Basic CEC Course I am writing for your assistance in evaluating that course. I feel that since you have now had an opportunity to serve in the field you will have some valuable information and opinions that should be considered in future modifications to the curriculum. With this in mind I have enclosed an evaluation questionnaire for your study and completion.

The questionnaire has been tried on a few hearty souls already and will require about 30 minutes to complete. Your prompt completion and return of questionnaire will be greatly appreciated. Your opinion and comments will be carefully considered in future revisions of the curriculum.

With best personal regards,

Sincerely,

HARRY C. WILLS
LCDR, CEC, USN
Executive Officer, CECOS

Encl: Questionnaire for
the Basic CEC Course

QUESTIONNAIRE

EVALUATION OF THE BASIC CEC OFFICERS COURSE

The purpose of this questionnaire is to evaluate the curriculum content of the Basic CEC Course. The questionnaire is designed to determine how effectively the subjects presented prepared the graduates for their assigned billets.

1. In the light of what you now know about the duties of CEC Officers, do you agree that a CEC Officers course is necessary?

Check your choice

- | | |
|-----------------------|-----|
| (a) Strongly agree | () |
| (b) Agree | () |
| (c) Doubtful | () |
| (d) Disagree | () |
| (e) Disagree strongly | () |
2. What do you think about the general value and usefulness of the CEC Officers course you attended?
- | | |
|---|-----|
| (a) All or most of it was important and useful | () |
| (b) More than half of it was important and useful | () |
| (c) Half or less of it was important and useful | () |
3. Which part of your career in the Corps should your training in the Basic CEC Officers Course be emphasizing?
- | | |
|----------------------|-----|
| (a) First 20 years | () |
| (b) First 10 years | () |
| (c) First 5 years | () |
| (d) First year only | () |
| (e) 30 years or more | () |
4. Considering the material to be covered, how do you feel about the present course duration of 16 weeks?
- | | |
|--------------------|-----|
| (a) About right | () |
| (b) Much too long | () |
| (c) Too long | () |
| (d) Much too short | () |
| (e) Too short | () |
5. How many of your instructors were able to put across successfully what they were trying to teach?
- | | |
|-------------------------|-----|
| (a) All or most of them | () |
| (b) About half of them | () |
| (c) Very few of them | () |
6. Was the material studied in the classroom out of date or different from that used in the field?
- | | |
|------------------|-----|
| (a) Always | () |
| (b) Frequently | () |
| (c) Occasionally | () |
| (d) Seldom | () |
| (e) Never | () |

7. Do you feel there was sufficient practical engineering field work in your course?

- | | |
|----------------------------|-----|
| (a) Too much | () |
| (b) About the right amount | () |
| (c) Far too much | () |
| (d) Too little | () |
| (e) Far too little | () |

8. Indicate by (/) those areas in which you would increase emphasis and by (-) those areas which you would decrease emphasis. Leave blank those you consider to have been correctly emphasized.

- | | |
|--|-----|
| Naval Orientation | () |
| Public Works Administration | () |
| Naval Shore Establishment | () |
| (Structures, Facilities and Utilities) | () |
| Advanced Bases and C.B. Training | () |

9. To what extent do you consider the following subjects important in the Basic CEC Officers Course? (Rate according to this scale: (4) Very important - (3) Considerably important - (2) Limited importance - (1) Not important)

ORIENTATION

- | | |
|---------------------------------|-----|
| (a) Naval Orientation | () |
| (b) Uniform Regulations | () |
| (c) Naval Procedures | () |
| (d) Naval Leadership | () |
| (e) Naval Current Events | () |
| (f) Drill and Physical Training | () |

ADMINISTRATION

- | | |
|---------------------------------------|-----|
| (a) Bureau of Yards and Docks | () |
| (b) Naval Station Public Works | () |
| (c) Naval Correspondence | () |
| (d) Inspections and Reports | () |
| (e) Civilian Personnel Administration | () |
| (f) Supplies and Materials Management | () |
| (g) Financial Management | () |
| (h) Initiation of New Projects | () |
| (i) Contract Administration | () |
| (j) Construction by Station Forces | () |
| (k) Real Estate | () |
| (l) Housing and Public Quarters | () |
| (m) Work Measurement Program | () |
| (n) Safety Program | () |
| (o) Disaster Planning | () |
| (p) Public Relations | () |

SHORE ESTABLISHMENT

- (a) Introduction to Shore Establishment ()
- (b) Personnel Facilities ()
- (c) Industrial Facilities ()
- (d) Waterfront Facilities ()
- (e) Aviation Facilities ()
- (f) Ordnance Facilities ()
- (g) Supply Facilities ()
- (h) Electrical Systems ()
- (i) Power Plants ()
- (j) Distribution Systems ()
- (k) Heating-Ventilating ()
- (l) Water Supply ()
- (m) Materials and Processes ()
- (n) Automotive Transportation ()
- (o) Rail Transportation ()
- (p) Weight Handling Equipment ()
- (q) Construction Equipment ()
- (r) Fire Protection ()

SPECIALIZED ENGINEERING

- (a) Mission of Advanced Bases ()
- (b) Logistics ()
- (c) Naval Construction Forces ()
- (d) Advanced Base Planning ()
- (e) Advanced Base Construction ()
- (f) Harbor Defense ()
- (g) Cold Weather Engineering ()
- (h) Desert Engineering ()
- (i) Radiological Decontamination ()
- (j) Chemical Decontamination ()
- (k) Biological Decontamination ()
- (l) Surveying ()
- (m) Diving ()
- (n) Welding ()
- (o) Paints ()

10. Please list your opinion by checking a plus (+) for agreement and a minus (-) for disagreement. Leave blank if no opinion.

- (a) Increase the number of field trips ()
- (b) Spend more time on subjects taught at the CB enlisted schools ()
- (c) Rifle and pistol range training should be included in the course ()
- (d) Attend special amphibious training course at the Naval Amphibious Training Center ()

11. Name any subjects taught in your course which were inadequately covered considering their importance.

- (a)
- (b)
- (c)
- (d)

12. Name any subjects taught in your course which were over-emphasized beyond their importance.

- (a)
- (b)
- (c)
- (d)

13. Name any additional subjects or materials which you feel should have been included in your course.

- (a)
- (b)
- (c)
- (d)

14. Do you feel that CEC Officers should be given an advanced CEC course after several years experience in the Corps?

- | | |
|-----------------------|-----|
| (a) Strongly agree | () |
| (b) Agree | () |
| (c) Doubtful | () |
| (d) Disagree | () |
| (e) Disagree strongly | () |

15. General comments for the improvement of the Basic CEC Course:

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