

**PLAN OF INSTRUCTION
(Technical Training)**

BULG COMPUTER PROGRAMMING



KEESLER TECHNICAL TRAINING CENTER

30 June 1970

**VOLUME 4
of 4 VOLUMES**

LIST OF EFFECTIVE PAGES

Total Number of Pages in This Publication is 19 Consisting of the Following:

<u>Page No</u>	<u>Issue</u>
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DISTRIBUTION: TSDC-30, TSE-1, TSOC-1, USAF (AFPTR)-2, ATC (ATTES)-2, AUL-1, American Council on Education-1.

FOREWORD

1. PURPOSE. This volume prescribes the qualitative requirements for Blocks VIII and IX of Course 3AZR27370 D, BUIC Computer Programming, in terms of learning objectives (criterion and enabling) presented in the preferred teaching sequence, and shows their duration, support materials, and guidance. It was developed under the provisions of ATCR 52-7, Plan of Instruction, and ATCR 52-33, Instructional System Development.
2. COURSE DESCRIPTION. This course trains Air Force NCOs in the skills and knowledges needed by them to perform as BUIC III computer programmers. The course includes computer principles, computer mathematics, basic programming concepts and techniques, BUIC assembler language programming, and BUIC compiler language programming. It also includes analysis of the BUIC III System functional areas of air surveillance, information transfer, weapons, simulation, recording, control, and ADP/BCDP interface. On-equipment training includes preparation, assembly, and debugging of assembly and compiler language programs, adaptation data, and geography; use of simulation techniques to create an artificial environment for system testing; operation of ADP program for system testing and recording; reduction and analysis of test results; and use of the utility programs to construct, verify, and maintain the ADP master tapes.
3. COURSE FORM. Pages iii and iv describe instruction in terms of major subject areas and time allocation as shown in table III of the course chart. The six-hour day (360 minutes) includes 300 minutes for instruction in classroom/laboratory activities and 60 minutes for student administrative activities such as breaks, clean-up, and class change.
4. EQUIPMENT ALLOWANCES AND AUTHORIZATIONS. With the exception of the prime training vehicle which is authorized in the PC documents, equipment required to conduct this course is listed in Equipment Authorization Inventory Data Number OZRO124. The following TAs apply:

TA 006	Organizational and Administrative Equipment
TA 014	Individual Training
TA 636	Film Library

OPR: Computer Systems Department
DISTRIBUTION: Listed on Page A.

5. REFERENCES. This Plan of Instruction is based on COURSE TRAINING STANDARD 3AZR27370 D, 22 December 1969 and COURSE CHART 3AZR27370 D, 21 February 1970.

FOR THE COMMANDER

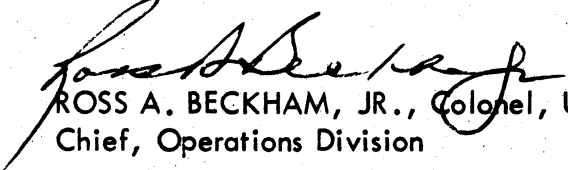

ROSS A. BECKHAM, JR., Colonel, USAF
Chief, Operations Division

TABLE III - COURSE CONTENT - COURSE CHART 3AZR27370 D

HOURS PER WEEK	1	2	3	4	5	6
1	<u>Course Material - UNCLASSIFIED</u> 90 Hours BLOCK I - Programming Principles					
2	Orientation (1 hr); Introduction to computer (5 hrs); Computer mathematics (13 hrs); Boolean logic (5 hrs); Basic problem solving techniques (6 hrs); Flowchart design and analysis (55 hrs); Measurement (5 hrs).					
3						
4	<u>Course Material - UNCLASSIFIED</u> 78 Hours BLOCK II - Central Processor Programming I					
5	Introduction to AN/GSA-51A System (3 hrs); Basic instruction set (29 hrs); Comparison and logical instructions (10 hrs); Introduction to Compool programming (6 hrs); Shift, complex arithmetic, conditional branch, and repeat instructions (24 hrs); Measurement (6 hrs).					
6	<u>Course Material - UNCLASSIFIED</u> 66 Hours BLOCK III - Central Processor Programming II					
7	Field and character search instructions (12 hrs); Mini-BUIC system (15 hrs) Floating point instructions (9 hrs); Special system oriented codes (9 hrs) Subroutines (9 hrs); Interrupt system (6 hrs); Measurement (6 hrs).					
8	<u>Course Material - UNCLASSIFIED</u> 63 Hours BLOCK IV - Input/Output Programming					
9	Introduction (1 hr); Input/output communications (14 hrs); Programming terminal devices (45 hrs); Measurement (3 hrs).					
	<u>Course Material - SECRET</u> 33 hrs BLOCK V - BUIC System Analysis I					
10	Introduction (9 hrs)(S); Air surveillance (21 hrs)(S); Measurement (3 hrs)(U).					
11	Above titles are unclassified					

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TABLE III - COURSE CONTENT - COURSE CHART 3AZR27370 D

HOURS PER DAY WEEKS	1	2	3	4	5	6
11	<p>Course Material - SECRET 36 Hours BLOCK VI - BUIC System Analysis II</p>					
12	<p>Weapons (18 hrs)(S); Information transfer (11 hrs)(S); Simulation (4 hrs)(U); Measurement (3 hrs)(U).</p>			<p>Course Material - UNCLASSIFIED BLOCK VII - Utility Computer Programs 36 Hrs Introduction (1 hr); Initializing UCP (5 hrs); UCP control and service programs (6 hrs); Tape file maintenance (6 hrs); Assemblers (6 hrs); Adaptation (6 hrs); Utility maintenance system (3 hrs); Measurement (3 hrs).</p>		
13	<p>Above titles are unclassified</p>					
14	<p>Course Material - UNCLASSIFIED 90 Hours BLOCK VIII - Program Testing and Analysis</p>					
15	<p>Introduction (1 hr); Startover, control, and ADP/BCDP interface (10 hrs); Test planning (11 hrs); BUIC exercise preparation system (BEPS) (16 hrs); Facility system (12 hrs); BUIC analysis and reduction system (BARS) (10 hrs); Master tape generation (6 hrs); Program error correction (12 hrs); Program report processing (6 hrs); Measurement (6 hrs).</p>					
16						
17	<p>Course Material - UNCLASSIFIED 42 Hours BLOCK IX - Compiler Language Techniques</p>					
18	<p>Introduction (3 hrs); Coding conventions and program construction (33 hrs); Measurement (4 hrs); Course critique and graduation (2 hrs).</p>					

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PLAN OF INSTRUCTION		COURSE TITLE	
BLOCK TITLE			
PLAN OF INSTRUCTION NO		DATE	BLOCK NO.
3AZR27370 D		30 June 1970	VIII
PAGE NO.		1	
PLAN OF INSTRUCTION		BUIC Computer Programming	
BLOCK TITLE		Program Testing and Analysis	
1	LEARNING OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE
	<p>1. Introduction. Given all references, identify the steps necessary to: (CTS para 5a, 5b, 5c, 5d(3), 5e)</p> <p>a. Construct an ADP (Air Defense Program).</p> <p>b. Verify a newly constructed tape.</p> <p>c. Correct or update a master tape.</p> <p>d. Reduce data from tape.</p> <p>e. Forward problem reports.</p>	<p>Wk14-Dy3</p> <p>1</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p>	<p><u>Instructional Materials</u> TM 2986/100, BUIC Exercise Preparation System User's Manual TM 2986/201, Exercise Processor User's Manual TM 2986/202, Operational Processor User's Manual (UM) TM 2986/203, Test Data Analysis Processor TM 2780/003, Facility System User's Manual TM 2385/108, Displays TM 2385/109, Switch Actions TM 2385/203, Compool Descriptions TM 2385/204, Compool and Layout TM(ADC)-820/611, SAGE-BUIC Environmental Data ADCBPH 55-68, Manual Inputs</p> <p><u>Equipment and Training Aids</u> Overhead Projector</p> <p><u>Training Methods</u> L 1 hr</p>
	<p>2. Startover, Control, and ADP/BCDP Interface (CTS para 3c, 5a, 5b, 5c, 5d(3))</p> <p>a. Introduction. Given a list of descriptive statements, select those which are true in regard to:</p> <p>(1) The concepts used to achieve the operational reliability, maintainability, and availability levels in the AN/GSA-51A required to support the BUIC NCC performance requirements.</p> <p>(2) Composition of the BUIC Confidence Diagnostic Computer Program (BCDP).</p>	<p>10</p> <p>(2)</p> <p>E</p> <p>E</p>	<p><u>Instructional Materials</u> TM 2385/201, General TM 2385/229, Control Program (COP) TM 2385/239, Startover Program (SET) TM 2385/105, Startover, Control, Recording, and Real-Time Simulation</p> <p><u>Equipment and Training Aids</u> Overhead Projector</p> <p><u>Training Methods</u> Ds-Da 10 hrs</p>

PLAN OF INSTRUCTION (Continued)

1 LEARNING OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE	
<p>(3) ADP/BCDP interface concepts.</p> <p>(4) Use of the status table.</p> <p>b. Startover Function. Given a list of descriptive statements, select those which are true in regard to:</p> <p>(1) The ADP activities involving the initiation and re-initiation of the ADP cycle.</p> <p>(2) The function of each input to the startover function.</p> <p>(3) The function of each output from the startover function.</p> <p>(4) The definitions of the three modes of operation associated with the startover function.</p> <p>(5) The five ways in which the operation of the startover function can be initiated.</p> <p>(6) The definition of <u>standard equipment configuration</u>.</p> <p>(7) The major information processing functions performed by the startover function.</p> <p>(8) The definition of <u>safe data</u>.</p> <p>(9) The name of the equipment used for startover function input and output messages.</p> <p>(10) The types of input messages associated with the startover function.</p> <p>(11) The three general categories of output messages.</p> <p>(12) The interpretation of startover function input and output messages.</p> <p>(13) How the startover function loads and initiates BCDP.</p>	<p>E</p> <p>E</p> <p>(3)</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p>		
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PLAN OF INSTRUCTION (Continued)

1 LEARNING OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE	
<p>c. Control Functions. Given a list of descriptive statements, identify those which are true in regard to:</p> <ul style="list-style-type: none"> (1) The definition of the control function. (2) The function of each input to the control function. (3) The function of each output of the control function. (4) The major information processing functions performed by the control function. (5) The purpose and meaning of control function messages. (6) The use of the ADP status table. (7) The response of the control function to an interrupt from the BCDP. (8) The conditions required for the control function to initiate operation of BCDP's confidence checking routine. (9) How the control function attempts to have ADP and BCDP switch their utilization of the computer module, the controller-comparator module, and the BCDP memory module on a cyclic basis. (10) The conditions that will cause the control function to initiate operation of BCDP's error recovery cycle. (11) The methods used to have the control function initiate operation of the startover function. (12) The contents and sequence of the ADP Start Deck. (13) The use of octal correctors. (14) The steps required to: 	<p align="center">Wk14-Dy4 (5)</p> <p>E E E E E E E E E E E E E</p>		
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PLAN OF INSTRUCTION (Continued)

1 LEARNING OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE
<p>(a) Load ADP from UCP.</p> <p>(b) Load ADP from BCDP.</p> <p>(c) Manual load ADP.</p> <p>3. Test Planning. Given the specifications for the Assembly Test Laboratory project, prepare a test plan for the project (CTS para 5d(1))</p> <p>4. BUIC Exercise Preparation System (BEPS)</p> <p>a. Given the BEPS User's Manual, a list of input formats, program functions, and system operational procedures; use the ETG function of BEPS to create test inputs for the assembly test laboratory project. (CTS para 5d(2))</p> <p>(1) Identify the uses of BEPS.</p>	<p>E</p> <p>E</p> <p>E</p> <p>C 11</p> <p>Wk14-Dy5</p> <p>Wk15-Dy1</p> <p>C 16</p> <p>E (1)</p>	<p><u>Instructional Materials</u> TM 2385/108, Displays TM 2385/109, Switch Actions TM(ADC)-820/611, SAGE/BUIC Environmental Data and Equipment Assignments for 35th NORAD Division</p> <p><u>Equipment and Training Aids</u> Overhead Projector</p> <p><u>Training Methods</u> L-Ds 5 hrs, P 6 hrs(3)</p> <p><u>Instructional Guidance</u> (1) Introduce the laboratory project.</p> <p>(6) Monitor student activity closely.</p> <p>(4) Grade and critique test plans prepared by the students.</p> <p><u>Instructional Materials</u> TM 2385/107, Variable Display Equipment TM 2385/109, Switch Actions TM 2986/100, BUIC Exercise Preparation System ADCBPH 55-68, Manual Inputs</p> <p><u>Equipment and Training Aids</u> Overhead Projector 026 Card Punch (2) AN/GSA-51A Computer System (9)</p>
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PLAN OF INSTRUCTION (Continued)

1 LEARNING OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE	
<p>(2) Outline the tape loading sequence for BEPS for CUE load and manual load.</p> <p>(3) From a list of descriptive statements, select those which are accurate in regard to the operation of the control program and the inputs to the control program.</p> <p>(4) Develop test data inputs.</p> <p>b. Given the BEPS User's Manual, a list of input formats program functions, and system operational procedures; utilize the List (LST) and Aids (AYDS) functions of BEPS. (CTS para <u>5d(2)</u>)</p> <p>5. Facility System. Given the UCP User's Manual, a list of required and optional control inputs to an ADP start deck, Facility System program definitions, and system operational procedures; operate programs DNA and PRC in conjunction with the BEPS generated simulation tape to record test data. (CTS para <u>5d(3)</u>, <u>5d(4)</u>)</p> <p>a. Given a list of descriptive statements, identify the statements that are accurate in respect to the:</p> <p>(1) Relationship of the Facility System to the:</p> <p>(a) Utility System.</p> <p>(b) Air Defense Program.</p>	<p>E (1)</p> <p>Wk15-Dy2</p> <p>E (3)</p> <p>E (1)</p> <p>C (2)</p> <p>Wk15-Dy3</p> <p>(6)</p> <p>Wk15-Dy4</p> <p>(2)</p> <p>C 12</p> <p>(4)</p> <p>E</p> <p>E</p>	<p><u>Training Methods</u> L-Ds-Dm 5 hrs, P 7 hrs(2), P 4 hrs(3)</p> <p><u>Instructional Guidance</u></p> <p>Demonstrate the use of the LST and AYDS functions of BEPS.</p> <p>Allow only one student access to the computer at one time. Monitor student activity closely and assist when necessary.</p> <p>Continue previous day's activity until all students have utilized the LST and AYDS functions of BEPS.</p> <p><u>Instructional Materials</u> TM 2385/203, Compool Description TM 2385/204, Compool and Layout TM 2780/003, Facility System User's Manual</p> <p><u>Equipment and Training Aids</u> Overhead Projector 026 Card Punch (2) AN/GSA-51A Computer System (9)</p> <p><u>Training Methods</u> L-Ds-Dm 9 hrs, P 3 hrs(2)</p>	
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PLAN OF INSTRUCTION (Continued)		
1 LEARNING OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE
<p>(2) The following types of loading sequences for the Air Defense Program:</p> <ul style="list-style-type: none"> (a) CUE load (Start ADP). (b) Manual Load. (c) BCDP load. <p>b. Given a list of descriptive statements, identify the statements that are true in regard to the:</p> <ul style="list-style-type: none"> (1) Use of input cards to SET to cycle ADP and the Facility System. (2) Function of the Facility program (FAC). (3) Card inputs to FAC. (4) Function of the DNA program. (5) Control and data inputs to DNA. (6) Outputs/Results of DNA. (7) Function of the PRC program. (8) Control and data inputs to PRC. (9) Outputs/Results of PRC. <p>c. Load ADP manually.</p> <p>d. Operate ADP and interpret outputs.</p>	<p>E</p> <p>E</p> <p>E</p> <p>Wk15-Dy5</p> <p>(5)</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>Wk16-Dy1</p> <p>E</p>	
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PLAN OF INSTRUCTION (Continued)

1 LEARNING OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE	
<p>6. BUIC Analysis and Reduction System (BARS). Given the BARS User's Manual, a list of input and output formats, program functions, and system operational procedures; reduce the BUIC Operational Recording Tape (BORT) generated from the facility system phase of the assembly test laboratory project. (CTS para <u>5d(5)</u>)</p> <p>a. Identify statements which are true in regard to:</p> <p>(1) How the control program initiates the operation of operation of individual BARS program.</p> <p>(2) The identity of the five components of BARS.</p> <p>b. Identify statements which are true in regard to the operation of each BARS component.</p> <p>c. Reduce recording tape.</p> <p>7. Master Tape Generation. Given the UCP User's Manual, a list of input and output formats, program functions, system operational procedures, and ADP start deck; request the operation of MTC and TLO to construct an ADP master tape. (CTS para <u>5c</u>)</p> <p>a. Identify the sequence of events in master tape generation.</p> <p>b. Identify statements that are accurate in regard to the:</p> <p>(1) Function, control inputs, data inputs, and outputs/results of the TLO.</p> <p>(2) Function, control inputs, data inputs, and outputs/results of the MTC.</p> <p>c. Use MTC and TLO programs.</p>	<p>10</p> <p>(4)</p> <p>E</p> <p>E</p> <p>Wk16-Dy2</p> <p>E (1)</p> <p>E (5)</p> <p>Wk16-Dy3</p> <p>C 6</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p>	<p><u>Instructional Materials</u> TM 2986/201, Exercise Processor User's Manual TM 2986/202, Operational Processor User's Manual TM 2986/203, Test Data Analysis Processor</p> <p><u>Equipment and Training Aids</u> Overhead Projector O26 Card Punch (2) AN/GSA-51A Computer System (9)</p> <p><u>Training Methods</u> L-Ds-Dm 5 hrs, P 5 hrs(3)</p> <p><u>Instructional Materials</u> TM 2780/003, Facility System User's Manual</p> <p><u>Equipment and Training Aids</u> Overhead Projector O26 Card Punch (2) AN/GSA-51A Computer System (9)</p> <p><u>Training Methods</u> L-Ds-Dm 3 hrs, P 3 hrs(3)</p>	
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PLAN OF INSTRUCTION (Continued)

1 LEARNING OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE
<p>8. Program Error Correction. Given the UCP User's Manual, a list of input and output formats, program functions, and system operational procedures; operate program SRC to correct program errors. (CTS para <u>2k</u>, <u>3f(2)</u>, <u>3f(3)</u>, <u>5f</u>)</p> <p>a. Given a set of descriptive statements, select those which are true in regard to the:</p> <p>(1) Reason Program Error Correction (PEC) is required.</p> <p>(2) Sequence of events involved in PEC.</p> <p>(3) Function, control inputs, data inputs, and outputs/results of SRC.</p> <p>(4) Use of a test plan to verify the problem report.</p> <p>b. Analyze ADP Part II Specifications to locate coding errors.</p> <p>c. Load ADP and correct problem area with SRC correctors.</p> <p>9. Program Report Processing. Given a set of descriptive statements, select those which are true in regard to:</p> <p>a. Procedures used for Category I and Category II program problem reports.</p> <p>b. The format of a problem report.</p> <p>c. Identity and responsibilities of the agencies involved in processing a problem report. (CTS para <u>5e</u>)</p>	<p>Wk16-Dy4</p> <p>C 12</p> <p>(6)</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>Wk16-Dy5</p> <p>E (3)</p> <p>E (3)</p> <p>Wk17-Dy1</p> <p>6</p> <p>E</p> <p>E</p> <p>E</p>	<p><u>Instructional Materials</u> TM 2780/003, Facility System User's Manual</p> <p><u>Equipment and Training Aids</u> Overhead Projector O26 Card Punch (2) AN/GSA-51A Computer System (9)</p> <p><u>Training Methods</u> L-Ds-Da 6 hrs, P 6 hrs(2)</p> <p><u>Instructional Materials</u> ADCL 50-3, Interim Configuration Control of the BUIC III Computer Program System ADCM 55-32, Configuration Control of the 416L (SAGE) and 416M (BUIC) Computer Program Systems</p> <p><u>Equipment and Training Aids</u> Overhead Projector</p> <p><u>Training Methods</u> L-Ds 6 hrs</p>
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PLAN OF INSTRUCTION (Continued)

1 LEARNING OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE
<p>10. Measurement</p> <p>a. Examination</p> <p>b. Critique</p>	<p>Wk17-Dy2</p> <p>6</p>	<p>(4) <u>Instructional Materials</u> ATCR 52-3, Measurement (I) ATCR 52-29, Student Critique Program (I)</p> <p>(2) <u>Training Methods</u> TW 4 hrs, Ds 2 hrs</p>

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BLOCK NO. VIII

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PLAN OF INSTRUCTION		COURSE TITLE	
BLOCK TITLE		BUIIC Computer Programming	
Compiler Language Techniques			
1	LEARNING OBJECTIVES	2	DURATION (HOURS)
			3
			SUPPORT MATERIALS AND GUIDANCE
	<p>1. Introduction to Compilers and Computer Languages (CTS para 6a)</p> <p>a. Identify the basic function of a compiler.</p> <p>b. Identify the functions of the three major blocks of the JOVIAL compiler.</p> <p>c. Compare JOVIAL with the BUIIC III machine language.</p> <p>2. Coding Conventions and Program Construction</p> <p>a. Given the desired JOVIAL option data values to be input, statement and declaration formats, and system operational procedures; code and debug short programs that initiate and utilize the compiler. (CTS para 6a, 6b, 6c)</p> <p>(1) JOVIAL Compiler Control Functions:</p> <p>(a) Interpret a compile card.</p> <p>(b) Identify the effect of the Loader Control Cards.</p> <p>(c) Interpret the Control Card.</p> <p>(d) List the options that will be assumed by the compiler if no control card is used.</p> <p>(2) JOVIAL Coding Format:</p> <p>(a) List the signs of JOVIAL for letters, numerals, octal numerals, and marks.</p>	<p>Wk17-Dy3</p> <p>3</p> <p>E</p> <p>E</p> <p>E</p> <p>33</p> <p>C</p> <p>(3)</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>Wk17-Dy4</p> <p>(1)</p> <p>E</p>	<p><u>Instructional Materials</u> C189-BUIIC-ST, BUIIC III Programmer Compiler Language Text</p> <p><u>Equipment and Training Aids</u> Overhead Projector</p> <p><u>Training Methods</u> L-De 3 hrs</p> <p><u>Instructional Materials</u> TM 2780/004, BUIIC III UCP User's Manual SDC TM 2961/000, JOVIAL Training Manual for AN/GSA-51A SDC's JOVIAL: A New Computer Language System (I) SDC TM 555/002, The JOVIAL Grammar and Lexicon (I) SDC TM 555/003, The JOVIAL Primer (I)</p> <p><u>Equipment and Training Aids</u> Overhead Projector 026 Card Punch (2) AN/GSA-51A Computer System (9)</p> <p><u>Training Methods</u> L-De 16 hrs, P 17 hrs(2)</p>
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PLAN OF INSTRUCTION (Continued)

1 LEARNING OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE	
<p>(b) Give an example of each of the following JOVIAL symbols:</p> <ol style="list-style-type: none"> 1. Primitive 2. Constant 3. Loop Variable 4. Abbreviation 5. Name 6. Ideogram 7. Comment <p>(3) JOVIAL Declarations</p> <p>(a) Given a set of descriptive statements, identify those statements which are true in regard to:</p> <ol style="list-style-type: none"> 1. Item declarations 2. Table declarations 3. Arithmetic constants 4. Primitives <p>(b) Write short programs using the following program statements:</p> <ol style="list-style-type: none"> 1. Program brackets 2. Statement labels 3. Assignment statements 	<p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>(5)</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>Wk17-Dy5</p> <p>(2)</p> <p>E</p> <p>E</p> <p>E</p>		
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PLAN OF INSTRUCTION (Continued)

1 LEARNING OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE	
<p><u>4.</u> Unconditional transfers</p> <p><u>5.</u> Program termination</p> <p><u>6.</u> Decision statements</p> <p>(c) Perform tasks which are required to load the compiler system into memory.</p> <p>(d) Write looping statements</p> <p>(e) Write short programs using arithmetic statements.</p> <p>(f) Identify the function of BYTE and BIT modifiers.</p> <p>(g) Write short programs using the JOVIAL concepts of BYTE and BIT modifiers and Item and Index Switches.</p> <p>(h) Given a set of descriptive statements, identify those statements which are true in regard to the methods of introducing machine language programming within a JOVIAL program.</p> <p>b. Given the types of subroutines, required control inputs, the subroutine call and declaration formats, and list of available subroutines; code inputs to initiate and utilize the library of subroutines on the compiler. (CTS para <u>2i</u>, <u>2h</u>, <u>6a</u>, <u>6b</u>, <u>6d</u>)</p> <p>(1) Identify the function of the following types of subroutines:</p> <p>(a) Function</p> <p>(b) Procedure</p> <p>(c) Glose</p>	<p>E</p> <p>E</p> <p>E</p> <p>(3)</p> <p>E (1)</p> <p>Wk18-Dy1</p> <p>E (4)</p> <p>E (2)</p> <p>Wk18-Dy2</p> <p>E (3)</p> <p>E (1)</p> <p>C</p> <p>(2)</p> <p>E</p> <p>E</p> <p>E</p>		
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PLAN OF INSTRUCTION (Continued)

1 LEARNING OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE
<p>(2) Using the library of subroutines, write a simple input/output program.</p> <p>(3) Code, punch, compile, operate, and debug a simple input/output program.</p> <p>3. Measurement</p> <p>a. Examination</p> <p>b. Examination Critique</p> <p>4. Course Critique and Graduation</p> <p>a. End-of-Course Critique</p> <p>b. Familiarization with field evaluation system:</p> <p>(1) Purpose</p> <p>(2) Procedure</p> <p>c. Graduation</p>	<p>Wk18-Dy3</p> <p>E (2)</p> <p>E (4)</p> <p>Wk18-Dy4</p> <p>4</p> <p>(3)</p> <p>(1)</p> <p>2</p> <p>(1)</p> <p>(½)</p> <p>(½)</p>	<p><u>Instructional Materials</u> ATCR 52-3, Measurement (I) ATCR 52-29, Student Critique Program (I)</p> <p><u>Training Methods</u> TW 3 hrs, Ds 1 hr</p> <p><u>Training Methods</u> L-Ds 2 hrs</p> <p><u>Instructional Guidance</u> Explain the use of field evaluation to evaluate and improve training courses. Briefly outline the procedures used in field evaluations and explain how graduates can contribute to the value of these evaluations.</p>
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