ORDER

ATCSTM 3120.4F

AIR TRAFFIC OPERATIONS MANUAL

AIR TRAFFIC CONTROL SPECIALIST TRAINING MANUAL

July 1, 2019

VATUSA MINNEAPOLIS ARTCC
VIRTUAL AIR TRAFFIC SIMULATION NETWORK

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Preface

The Air Traffic Control Specialist Training Manual (ATCSTM) is Volume 3 of the ZMP Air Traffic Operations Manual – a library of controlled documents which contain all administrative and operational policies and procedures for the Virtual Minneapolis Air Route Traffic Control Center (ZMP).

The ATCSTM will be used as the local ARTCC reference concerning the training, testing, and evaluation of the air traffic controllers with membership privileges at the Virtual Minneapolis Air Route Traffic Control Center (ZMP). Oversight of the ATCSTM is the responsibility of the Director of Training/Training Administrator.

Controlled documents are publications that have certain procedures for distribution and record keeping. The object is to keep all persons who have a copy of this document current with any ongoing changes and revisions. This is accomplished through a revision and bulletin system.

Revisions: Periodically, a number of changes to the document will require the addition, subtraction, or replacement of several sections of the document. To accomplish this, a revision will be issued. With the revision, each person possessing a copy will be given instructions on how to revise their copy. Each person receiving a revision to this controlled document will record the revision in the revision log.

Bulletins: On a regular basis, new information which is of high importance may be added to the document without having to wait for the next revision to be published. Such information will be disseminated with a bulletin which will supplement the document in specific areas or subject matter. With the bulletin, each person possessing a copy will be given instructions on how to insert the bulletin into the document. Each person receiving a bulletin will record the bulletin in the bulletin log.

Should any questions arise out of the use of this document, please address them to:

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SECTION 1

CONTROLLER RATINGS GUIDELINES AND COMPETENCIES

1.1 General

ZMP ARTCC shall at all times observe controller rating guidelines and competencies as set forth in applicable VATSIM and VATUSA policies. As such, all content and direction of the ZMP ATCSTM shall be utilized in the context of the governing VATSIM and VATUSA policies.

1.2 Applicability

All controllers belonging to ZMP ARTCC as members shall be trained to proficiency using the content and materials contained herein. Visiting controllers shall be subject to general competency guidelines and shall be trained in local procedures (Major facility certification) using the content and materials contained herein.

1.3 Training Scheduling

All training shall be scheduled via the ZMP ARTCC website at least 12 hours in advance unless otherwise initiated by a member of the training staff. The standard process for scheduling training must be as follows:

1. The student shall list his/her availability periods on the ZMP scheduling system. Availability periods should, but may not be, at least 2 hours in length.
2. The training staff member shall initiate a session offer to the student based upon the listed period(s) of availability.
3. The student shall respond to the session offer with either an acceptance or refusal based upon his/her readiness to conduct the session. Confirmation must be recorded at least 2 hours prior to the scheduled session start time.
4. Unless the training staff is otherwise notified, a No-Show Session occurrence shall be recorded if a student cancels a scheduled session within 2 hours of the scheduled start time, or if the student confirms a session and fails to report within 15 minutes of the scheduled start time.
5. Unless the training staff is otherwise notified, a Failure to Confirm Session occurrence shall be recorded if the student fails to respond to an offered training session with either an acceptance or refusal by a point 2 hours prior to the proposed session time.
6. No-Show/Failure to Confirm occurrences shall **not** be punitive in nature, rather used as an indicator of student progress and to identify trends in successful or unsuccessful training scheduling.

1.4 Training Expectations

1. The student shall take responsibility for the progress of his/her own training and allocate availability accordingly.
2. The student shall abide by the ZMP Training Scheduling process as outlined above.
3. The student shall prepare for sessions to the best of his/her ability, including self-study of ATC Orders, VATUSA CBI materials, and ZMP Facility Orders, and any other applicable reference resources.
4. The student shall be an active participant in his/her training, and seek out clarification on material where it is not immediately understood.
5. The student shall be provided a record of every training session for review via a 3120-25 training session report.

END OF SECTION

SECTION 2

MAJOR AIRPORT TRAINING PLANS

2.1 General

All controllers at ZMP shall meet the additional training standards of a Major facility before working positions at that facility. Under VATSIM's Global Ratings Policy, a controller must meet the standards at the Ground, Tower, and Approach levels. Currently Minneapolis (KMSP) is the sole Major airport under ZMP's jurisdiction.

2.1.1 Major facility certification Evaluation/Examination Requirements

Written Examinations and Quizzes

Written exams and/or quizzes will be administered for certification of controllers at MAJOR facilities. KMSP is the single MAJOR facility at ZMP.

Over-the-Shoulder Examinations

Over-the-Shoulder Exams (OTS) will be required for certification at Major facilities for each of the Ground, Tower, and Approach levels.

There is no major certification for ZMP CTR, however, transfer and visiting controllers who are C1 rated or higher must complete the requirements of all ZMP MAJOR facilities before they are considered certified on Minneapolis Center.

Oral Examinations

As a routine part of training and evaluation, the instructor administering a MAJOR facility certification test.(MFC) may use oral exam techniques to evaluate an applicants' knowledge.

2.3 Major Certification for KMSP Ground

I. Objective

To establish a uniform set of standards for controller competency at the positions listed in this document.

II. Applicability

This Local Competency Training Plan (Major facility certification) applies to the following positions and/or facilities:

KMSP (Minneapolis/St. Paul International Airport)
MSP_DEL
MSP_X_GND

(Note: X in the above position callsigns is a placeholder for any variation of the position, i.e. MSP_S_GND, MSP_N_GND)

III. Certification Standards

Controllers shall demonstrate competency in the following subject areas to attain certification:

1. Competency standards as defined by VATUSA for the rating of the controller.
2. Knowledge and usage of the ZMP ATCSOP sections that apply to the positions covered in this Major facility certification.
3. Written test/quiz score(s) for positions covered in this Major facility certification of 70% or greater.
4. Successful oral examination of Knowledge Areas listed in this Major facility certification.
5. Appropriate/commensurate logged time spent in OJT with a mentor or instructor working all positions covered in this Major facility certification.
6. Successful OTS examination for MSP_DEL and MSP_GND.

IV. Knowledge Areas

1. Positions
2. Intra-facility coordination (between tower cab positions)
3. Inter-facility coordination (between tower cab positions and external positions)
4. Airport Layout
5. Airspace Layout
6. Jurisdiction and responsibilities of each position

7. Communications and Frequencies
8. Flight Plan/Strip Management
9. SIDs and STARs
10. Common/Preferred Routings
11. LAHSO Operations
12. Special Operations

V. Certification Rules

1. Upon successful certification under this Major facility certification, the examining controller (typically an instructor, the Director of Training/Training Administrator, DATM, or ATM, or another controller designated by the ATM) shall make arrangements to have the Major facility certification certification posted on the ZMP website.
2. A controller may only exercise the privileges of the Major facility certification certification to extent their controller rating allows.
3. A controller who has previously attained certification under this Major facility certification is subject to competency review at any time. Should the controller's skills not meet the competency standards outlined in this Major facility certification, his/her certification may be revoked by the Director of Training/Training Administrator, DATM, or ATM.

2.4 Major Certification for KMSP Tower

VI. Objective

To establish a uniform set of standards for controller competency at the positions listed in this document.

VII. Applicability

This Major facility certification applies to the following positions and/or facilities:

KMSP (Minneapolis/St. Paul International Airport)
MSP_X_TWR

(Note: X in the above position callsigns is a placeholder for any variation of the position, i.e. MSP_S_TWR, MSP_N_TWR)

VIII. Certification Standards

Controllers shall demonstrate competency in the following subject areas to attain certification:

7. Competency standards as defined by VATUSA for the rating of the controller.
8. Knowledge and usage of the ZMP ATCSOP sections that apply to the positions covered in this Major facility certification.
9. Written test/quiz score(s) for positions covered in this Major facility certification of 70% or greater.
10. Successful oral examination of Knowledge Areas listed in this Major facility certification.
11. Appropriate/commensurate logged time spent in OJT with a mentor or instructor working all positions covered in this Major facility certification.
12. Successful OTS examination for MSP_TWR

IX. Knowledge Areas

1. Positions
2. Intra-facility coordination (between tower cab positions)
3. Inter-facility coordination (between tower cab positions and external positions)
4. Airport Layout
5. Airspace Layout
6. Jurisdiction and responsibilities of each position
7. Communications and Frequencies
8. Flight Plan/Strip Management

9. SIDs and STARs

10. Common/Preferred Routings

11. LAHSO Operations

12. Special Operations

X. Certification Rules

1. Upon successful certification under this Major facility certification, the examining controller (typically an instructor, the Director of Training/Training Administrator, DATM, or ATM, or another controller designated by the ATM) shall make arrangements to have the Major facility certification certification posted on the ZMP website.

2. A controller may only exercise the privileges of the Major facility certification certification to extent their controller rating allows.

3. A controller who has previously attained certification under this Major facility certification is subject to competency review at any time. Should the controller's skills not meet the competency standards outlined in this Major facility certification, his/her certification may be revoked by the Director of Training/Training Administrator, DATM, or ATM.

2.5 M98 TRACON Major facility certification

I. Objective

To establish a uniform set of standards for controller competency at the positions listed in this document.

II. Applicability

This (Major facility certification) applies to the following positions and/or facilities:

M98 TRACON (Minneapolis TRACON)
MSP_X_DEP
MSP_X_APP

(Note: X in the above position callsigns is a placeholder for any variation of the position, i.e. MSP_S_TWR, MSP_N_TWR)

III. Certification Standards

Controllers shall demonstrate competency in the following subject areas to attain certification:

1. Competency standards as defined by VATUSA for the rating of the controller.
2. Knowledge and usage of the M98/MSP TWRATCSOP sections that apply to the positions covered in this Major facility certification.
3. Written test/quiz score(s) for positions covered in this Major facility certification of 70% or greater.
4. Successful oral examination of Knowledge Areas listed in this Major facility certification.
5. Appropriate/commensurate logged time spent in OJT with a mentor or instructor working all positions covered in this Major facility certification.
6. Successful OTS examination for MSP_APP.

IV. Knowledge Areas

1. TRACON Positions of Operation
2. Intra-facility coordination (between TRACON positions)
3. Inter-facility coordination (between TRACON positions and external positions)
4. TRACON Functions
5. Airspace Layout
6. Jurisdiction and responsibilities of each position
7. Communications and Frequencies

8. Flight Plan/Strip Management

9. SIDs and STARs

10. Common/Preferred Routings

11. Simultaneous Parallel Approach Vectoring

12. Flows and Sequencing

13. Satellite Airport Operations

14. Class B Airspace Operations

V. Certification Rules

1. Upon successful certification under this Major facility certification, the examining controller (typically an instructor, the Director of Training/Training Administrator, DATM, or ATM, or another controller designated by the ATM) shall make arrangements to have the Major facility certification posted on the ZMP website.

2. A controller may only exercise the privileges of the Major facility certification to extent their controller rating allows.

   A controller who has previously attained certification under this Major facility certification is subject to competency review at any time. Should the controllers skills not meet the competency standards outlined in this Major facility certification, his/her certification may be revoked by the Training Administrator, DATM, or ATM.

SECTION 3

STUDENT RATING (S1) TRAINING SYLLABUS

3.1 Lesson Plans and Syllabus Outline

3.1.1 Overview

The lesson plans included in this section are intended to give students, mentors, and instructors guidance on training for the VATSIM/VATUSA Student rating (S1). The lesson plans contained herein shall include the minimum training elements needed to meet controller ratings guidelines and competency standards. Additional material may be covered on a case-by-case basis, so long that the material is within the scope of controller duties as contemplated by FAA orders, VATSIM and VATUSA policies, and the ZMP ARTCC Air Traffic Operations Manual. Times noted in the "Schedule" section of each lesson plan indicate the estimated time necessary to cover all elements, and should be used as a guideline only.

3.1.2 Syllabus Outline

Lesson	General Subjects
S1.1	Introduction to VATSIM/VATUSA Air Traffic Control
S1.2	Radar Client/Controller Workspace Setup
S1.3	Basic ATC Concepts and Regulations
S1.4	Basic ATC Communications and Phraseology
S1.5	Clearance Delivery
S1.6	Ground Control
S1.7	S1 Practical Exam Prep

3.2 S1 Rating Lesson Plans

S1.1 Introduction to VATSIM/VATUSA Air Traffic Control

Objective: To introduce the observer (OBS) rated controller to the functionality of air traffic control services in the VATSIM/VATUSA simulation environment.

Elements:
+ Basic radar client setup (login and sector file loading)
+ Review of VATSIM/VATUSA governance and organization
+ Review of VATUSA certification regulations
+ Review of types of ATC facilities and functions
+ Observation of radar environments and VATSIM ATC communications

Schedule: 30-90 minutes

Equipment: VRC, Teamspeak, reference to VATUSA, VATSIM, and ZMP websites.

Instructor/Mentor Actions:

The instructor or mentor shall assist the OBS controller in basic Teamspeak setup (if not already accomplished) so that the lesson can be conducted via Teamspeak.

The instructor or mentor shall assist the OBS controller in setting up an approved radar client (preferably VRC) for the purpose of observation. Proper login protocols shall be taught, and the OBS controller shall load the appropriate sector files to view all of ZMP's airspace features and facilities.

The instructor or mentor shall cover the elements of this lesson plan with verbal instruction while the OBS controller observes the live ATC environment on the network.

Student Actions:

The student shall work to understand the lesson elements, take notes, ask questions, and work with the instructor/mentor to meet the lesson objective. This lesson is mainly observation-based.

Completion Standards:

The lesson shall be completed when all elements are covered and the student understands how to log onto the VATSIM network as an OBS controller on his own.

3.2 S1 Rating Lesson Plans (continued)

S1.2 Radar Client/Controller Workspace Setup

Objective: This lesson shall instruct the student on how to best set up the radar client environment for work in a controller position

Elements:
+ Basic radar client setup (login and sector file loading)
+ Login to SWEATBOX servers
+ Position callsigns
+ VRC radar modes
+ Use of flight strips
+ Understanding of VRC functions used by tower cab controllers

Schedule: 30-90 minutes

Equipment: VRC, Teamspeak, reference to VATUSA, VATSIM, and ZMP websites, TWRTrainer, sector files that cover the KMSP tower cab environment.

Instructor/Mentor Actions:

The instructor or mentor shall assist the OBS controller in basic Teamspeak setup (if not already accomplished) so that the lesson can be conducted via Teamspeak.

The instructor or mentor shall assist the OBS controller in setting up an approved radar client (preferably VRC) on an appropriate SWEATBOX server. Proper login protocols shall be taught, and the OBS controller shall load the appropriate sector files to view all of ZMP's airspace features and facilities.

The instructor shall run a basic ground/tower scenario with ACSim or TWRTrainer to generate example traffic at KMSP.

The instructor or mentor shall cover the elements of this lesson plan with verbal instruction while the OBS controller observes and responds to instructor actions. *No part of the lesson shall be conducted "live" on the VATSIM network.*

Student Actions:

The student shall work to understand the lesson elements, take notes, ask questions, and work with the instructor/mentor to meet the lesson objective. The student shall also work on developing practical skill and technique using the radar client software to interact with aircraft.

Completion Standards:

The lesson shall be completed when all elements are covered. This includes successful demonstration of:

- Proper login procedures and basic radar client setup
- Understanding how to select, view, and interpret basic radar modes o simulate ASDE radar. Both basic and ground modes..
- How to aircraft "radio select" in the radar client
- How to access the flight strips and flight plans for aircraft
- How to use function keys and menus in the client to change aircraft data and tag information
- How to access weather information

S1.3 Basic ATC Concepts and Regulations

Objective: To understand basic ATC concepts, regulations, and function in the real-world and VATSIM environments. This includes covering relevant areas of FAA Order 7110.65 and CFR 14 FAR Part 91.

Elements:

+ Access to, and understanding of, FAA Order 7110.65
  - Chapter 2: General Control
+ Access to, and understanding of, FAR Part 91
  - 91.113 Right-of-way rules: Except water operations.
  - 91.115 Right-of-way rules: Water operations.
  - *91.117 Aircraft speed.*
  - *91.119 Minimum safe altitudes: General.*
  - *91.121 Altimeter settings.*
  - *91.123 Compliance with ATC*
  - *91.127 Operating on or in the vicinity of an airport in Class E airspace.*
  - *91.129 Operations in Class D airspace.*
  - *91.130 Operations in Class C airspace.*
  - *91.131 Operations in Class B airspace.*
  - 91.135 Operations in Class A airspace.
  - *91.153 VFR flight plan: Information required.*
  - *91.155 Basic VFR weather minimums.*
  - *91.159 VFR cruising altitude or flight level.*
  - *91.169 IFR flight plan: Information required.*
  - *91.173 ATC clearance and flight plan required.*
  - 91.175 Takeoff and landing under IFR.
  - 91.177 Minimum altitudes for IFR operations.
  - 91.179 IFR cruising altitude or flight level.
  - 91.181 Course to be flown.

Schedule: 90-120 minutes

Equipment: VRC, Teamspeak, reference to VATUSA, VATSIM, and ZMP websites. Online reference to FAA Order 7110.65 and FAR Part 91

Instructor/Mentor Actions:

The instructor or mentor shall conduct this lesson on Teamspeak. The student may be logged onto the VATSIM network as an observer, and it may be helpful to use the radar environment to help explain the regulations covered in this lesson.

The instructor or mentor shall endeavor to cover as much of the regulations listed in the elements as possible. They shall instruct the student to the point of general comprehension. The student does not need to “memorize” these regulations, per se, but does need to be instructed on how to access them. The student shall be encouraged to study the regulations on their own time to further understanding.

Student Actions:

The student shall work to understand the lesson elements, take notes, ask questions, and work with the instructor/mentor to meet the lesson objective. This lesson is mainly observation-based.

Completion Standards:

The lesson shall be completed when all elements are covered and the student understands how to access the regulations covered. In addition, the student shall demonstrate general comprehension of the regulations listed in *italic font*.

3.2 S1 Rating Lesson Plans (continued)

S1.4 Basic ATC Communications and Phraseology

Objective: To introduce and practice basic ATC communications and phraseologies.

Elements:
+ Basic radio operating technique (listen, think, transmit)
+ ICAO Phonetic Alphabet
+ Basic ATC phraseology
    - identification and response
    - clearances vs. instructions

Schedule: 30-60 minutes

Equipment: VRC, Teamspeak, reference to VATUSA, VATSIM, and ZMP websites.

Instructor/Mentor Actions:

The instructor or mentor shall demonstrate for the student proper communications skills covered in the lesson elements. This may be conducted over Teamspeak alone, or in conjunction with a SWEATBOX session to practice radar client radio techniques.

The student shall be taught basic radio operating techniques which include the ability to “listen, then think about what to say, and THEN transmit”. The instructor/mentor shall also provide instruction on basic phraseologies, taking care to differentiate between ATC clearances and instructions.

Student Actions:

The student shall work to understand the lesson elements, take notes, ask questions, and work with the instructor/mentor to meet the lesson objective. The student shall successfully demonstrate the ability to use proper ATC communications skills.

Completion Standards:

The lesson shall be completed when all elements are covered. This includes the student demonstrating basic ATC communications skill and phraseology. The student shall be able to respond as a controller should to aircraft queries, give basic instructions using appropriate phraseology and phonetics, and differentiate between clearances and instructions.

3.2 S1 Rating Lesson Plans (continued)

S1.5 Clearance Delivery

Objective: To introduce and practice the functions of the clearance delivery controller position

Elements:
+ Referencing the ZMP M98/MSP TWR SOP for MSP_DEL
+ Appropriate client setup/login for position
+ Understanding flight plans
+ ATC Clearances – general
+ KMSP standard clearances and routings
+ Transponder code allocations
+ Altitude assignment
+ Intra-facility coordination
+ Clearance phraseology (CRAFT method)
+ Flight plan management / Flight Progress Strips
+ Clearance delivery communications

Schedule: 60 minutes per instance of the lesson

Equipment: VRC, Teamspeak, TWRTrainer, reference to VATUSA, VATSIM, and ZMP websites.

Instructor/Mentor Actions:

The instructor or mentor shall have the student set up in the SWEATBOX environment. The instructor/mentor shall utilize TWRTrainer to simulate traffic at KMSP. The instructor/mentor shall demonstrate the lesson elements to the student, as well as play the role of aircraft.

Student Actions:

The student shall work to understand the lesson elements, take notes, ask questions, and work with the instructor/mentor to meet the lesson objective. The student shall successfully demonstrate the ability to operate as a clearance delivery controller.

Completion Standards:

The lesson shall be completed when all elements are covered. The student will be able to conduct themselves with competency as a clearance delivery controller. **This lesson shall be repeated as necessary to achieve completion standards.**

3.2 S1 Rating Lesson Plans (continued)

S1.6 Ground Control

Objective: To introduce and practice the functions of a ground controller

Elements:
+ Referencing the ZMP M98/MSP TWR SOP for ground positions at KMSP
+ Airport layout
+ Ground movement areas and operations
+ Difference between movement and non-movement area
+ Following procedures and sequencing to runway
+ Selection of runway based on winds/traffic flow
+ Sequencing aircraft for departure
+ Basic movement instructions
+ Intra-facility coordination
+ Ground controller communications

Schedule: 60 minutes per instance of the lesson

Equipment: VRC, Teamspeak, TWRTrainer, reference to VATUSA, VATSIM, and ZMP websites.

Instructor/Mentor Actions:

The instructor or mentor shall have the student set up in the SWEATBOX environment. The instructor/mentor shall utilize TWRTrainer to simulate traffic at KMSP. The instructor/mentor shall demonstrate these elements to the student, as well as play the role of aircraft.

Student Actions:

The student shall work to understand the lesson elements, take notes, ask questions, and work with the instructor/mentor to meet the lesson objective. The student shall successfully demonstrate the ability to operate as a ground controller.

Completion Standards:

The lesson shall be completed when all elements are covered. The student will be able to conduct themselves with competency as a ground controller. **This lesson shall be repeated as necessary to achieve completion standards. Upon successful demonstration of Clearance Delivery/Ground Control tasks, the student must be endorsed for non-major Clearance Delivery/Ground, and may be awarded a solo certification for Major Clearance Delivery/Ground at the discretion of the instructor.**

3.2 S1 Rating Lesson Plans (continued)

S1.7 S1 Major Practical Exam Preparation

Objective: To prepare the student to take the S1 written and practical exams successfully

Elements:
+ Pre-Control Setup and Configuration
    - Configuration of sector file and appropriate overlays
    - Setup and selection of proper communications frequencies
    - Selection and Activation of ATIS Information
+ Network Procedures
    - Uses appropriate callsign and credentials
    - Selection of appropriate visibility range settings based on recommended settings for position
+ Position Relief Briefing
+ Accessing Flight Strip Data
+ Flight Plan Amendments
+ Preferred Routing Procedures
+ Non-Standard Routing Procedures
+ VFR and IFR Clearance Procedures
+ Squawk Code Assignments
+ Clearance Issuance
+ Movement and Non-Movement Areas
+ Taxi and Ground Movement Operations
+ Helicopter Taxi Operations
+ Runway Selection
+ ATIS Issuance
+ Basic aviation weather
+ Controller communications
+ Intra-facility coordination

Schedule: 60-120 minutes per instance of the lesson

Equipment: VRC, Teamspeak, TWRTrainer, reference to VATUSA, VATSIM, and ZMP websites.

Instructor/Mentor Actions:

The instructor or mentor shall have the student set up in the SWEATBOX environment. The instructor/mentor shall utilize TWRTrainer to simulate traffic at KMSP. The instructor/mentor shall instruct and drill the student to proficiency and competency on all elements. Upon successful completion of the lesson, the instructor/mentor shall recommend the student for the S1 written and OTS Practical exams.

Student Actions:

The student shall work to attain proficiency and competency as an S1-rated controller. Upon recommendation of an instructor, the student shall take and pass the S1 written exam.

Completion Standards:

The lesson shall be completed when the student passes the MSP Ground Control written exam and is prepared to take the S1 MAJOR OTS practical exam. **This lesson shall be repeated as necessary to achieve completion standards.**

SECTION 4

STUDENT 2 RATING (S2) TRAINING SYLLABUS

4.1 Lesson Plans and Syllabus Outline

4.1.1 Overview

The lesson plans included in this section are intended to give students, mentors, and instructors guidance on training for the VATSIM/VATUSA Student rating (S1). The lesson plans contained herein shall include the minimum training elements needed to meet controller ratings guidelines and competency standards. Additional material may be covered on a case-by-case basis, so long that the material is within the scope of controller duties as contemplated by FAA orders, VATSIM and VATUSA policies, and the ZMP ARTCC Air Traffic Operations Manual. Times noted in the "Schedule" section of each lesson plan indicate the estimated time necessary to cover all elements, and should be used as a guideline only.

4.1.2 Syllabus Outline

Lesson	General Subjects
S2.1	Radar Client/Controller Workspace Setup
S2.2	Basic ATC Concepts and Regulations
S2.3	Basic ATC Communication and Phraseology
S2.4	Local Control (Tower)
S2.5	Student 2 (S2) Practical Test Prep

S2.1 Radar Client/Controller Workspace Setup

Objective: This lesson shall instruct the student on how to best set up the radar client environment for work in a controller position

Elements:
+ Basic radar client setup (login and sector file loading)
+ Login to SWEATBOX servers
+ Position callsigns
+ VRC radar modes
+ Use of flight strips
+ Understanding of VRC functions used by tower cab controllers

Schedule: 30-90 minutes

Equipment: VRC, Teamspeak, reference to VATUSA, VATSIM, and ZMP websites, TWRTrainer, sector files that cover the KMSP tower cab environment.

Instructor/Mentor Actions:

The instructor or mentor shall assist the S1 controller in setting up an approved radar client (preferably VRC) on an appropriate SWEATBOX server. Proper login protocols shall be taught, and the OBS controller shall load the appropriate sector files to view all of ZMP's airspace features and facilities.

The instructor shall run a basic ground/tower scenario with ACSim or TWRTrainer to generate example traffic at KMSP.

The instructor or mentor shall cover the elements of this lesson plan with verbal instruction while the OBS controller observes and responds to instructor actions. *No part of the lesson shall be conducted "live" on the VATSIM network.*

Student Actions:

The student shall work to understand the lesson elements, take notes, ask questions, and work with the instructor/mentor to meet the lesson objective. The student shall also work on developing practical skill and technique using the radar client software to interact with aircraft.

Completion Standards:

The lesson shall be completed when all elements are covered. This includes successful demonstration of:

- Proper login procedures and basic radar client setup
- Understanding how to select, view, and interpret basic radar modes o simulate ASDE radar and tower modes.
- How to aircraft "radio select" in the radar client
- How to access the flight strips and flight plans for aircraft
- How to use function keys and menus in the client to change aircraft data and tag information
- **How to access weather information**

S2.2 Basic ATC Concepts and Regulations

Objective: To understand basic ATC concepts, regulations, and function in the real-world and VATSIM environments. This includes covering relevant areas of FAA Order 7110.65.

Elements:
+ Access to, and understanding of, FAA Order 7110.65
+ Review Tower separation techniques for arrival/departure sequencing (at a glance)
+ Wake Turbulence Separation Application (at a glance)
+ Separation Minima (at a glance)
+ MSP/Airport Departure/Arrival Separation Procedures (at a glance)

Schedule: 90-120 minutes

Equipment: VRC, Teamspeak, reference to VATUSA, VATSIM, and ZMP websites. Online reference to FAA Order 7110.65.

Instructor/Mentor Actions:

The instructor or mentor shall conduct this lesson on Teamspeak. The student may be logged onto the VATSIM network as an observer, and it may be helpful to use the radar environment to help explain the regulations covered in this lesson.

The instructor or mentor shall endeavor to cover as much of the regulations listed in the elements as possible. They shall instruct the student to the point of general comprehension. The student does not need to "memorize" these regulations, per se, but does need to be instructed on how to access them. The student shall be encouraged to study the regulations on their own time to further understanding.

Student Actions:

The student shall work to understand the lesson elements, take notes, ask questions, and work with the instructor/mentor to meet the lesson objective. This lesson is mainly observation-based.

Completion Standards:

The lesson shall be completed when all elements are covered and the student understands how to access the regulations covered. In addition, the student shall demonstrate general comprehension of the regulations listed in *italic font*.

S2.3 Basic ATC Communications and Phraseology

Objective: To introduce and practice basic ATC communications and phraseologies.

Elements:
+ Basic radio operating technique (listen, think, transmit)
+ ICAO Phonetic Alphabet
+ Basic ATC phraseology
    - identification and response
    - clearances vs. instructions

Schedule: 30-60 minutes

Equipment: VRC, Teamspeak, reference to VATUSA, VATSIM, and ZMP websites.

Instructor/Mentor Actions:
The instructor or mentor shall demonstrate for the student proper communications skills covered in the lesson elements. This may be conducted over Teamspeak alone, or in conjunction with a SWEATBOX session to practice radar client radio techniques.

The student shall be taught basic radio operating techniques which include the ability to “listen, then think about what to say, and THEN transmit”. The instructor/mentor shall also provide instruction on basic phraseologies, taking care to differentiate between ATC clearances and instructions.

Student Actions:

The student shall work to understand the lesson elements, take notes, ask questions, and work with the instructor/mentor to meet the lesson objective. The student shall successfully demonstrate the ability to use proper ATC communications skills.

Completion Standards:

The lesson shall be completed when all elements are covered. This includes the student demonstrating basic ATC communications skill and phraseology. The student shall be able to respond as a controller should to aircraft queries, give basic instructions using appropriate phraseology and phonetics, and differentiate between clearances and instructions.

S2.4 Local Control (tower)

Objective: To introduce and practice the functions of a local controller (tower positions)

Elements:
+ Referencing the M98/MSP TWR ATCSOP for tower positions at KMSP
+ Basic aviation weather
    - METAR reports (decoding/understanding)
    - Cloud and precipitation types
    - FAR Part 91 weather minima review
+ Airport layout and runway configuration
+ Airspace, jurisdiction, and responsibility
+ Departure operations
+ Selection of runway based on winds/traffic flow
+ Sequencing aircraft for departure
+ Arrival operations
+ Traffic pattern operations
+ VTOL operations
+ Traffic sequencing and separation
+ Wake turbulence
+ LAHSO operations
+ Missed Approaches
+ Emergencies
+ Runway incursion avoidance
    - TIPH operations
+ Local controller communications
    - Appropriate phraseologies
    - ATIS management
+ Intra-facility coordination

Schedule: 60-120 minutes per instance of the lesson

Equipment: VRC, Teamspeak, TWRTrainer, reference to VATUSA, VATSIM, and ZMP websites.

Instructor/Mentor Actions:

The instructor or mentor shall have the student set up in the SWEATBOX environment. The instructor/mentor shall utilize TWRTrainer to simulate traffic at KMSP. The instructor/mentor shall demonstrate these elements to the student, as well as play the role of aircraft.

Student Actions:

The student shall work to understand the lesson elements, take notes, ask questions, and work with the instructor/mentor to meet the lesson objective. The student shall successfully demonstrate the ability to operate as a local controller.

Completion Standards:

The lesson shall be completed when all elements are covered. The student will be able to conduct themselves with competency as a ground controller. **This lesson shall be repeated as necessary to achieve completion standards.**

S2.5 S2 Practical Exam Preparation

Objective: To prepare the student to take the S2 written and practical exams successfully

Elements:

+ Spacing and Sequencing
+ Taxi Into Position and Hold (TIPH)
+ Land and Hold Short (LAHSO)
+ VFR Traffic Pattern
+ Wake Turbulence Separation
+ Converging or Parallel Runway Operations
+ Missed Approach Procedures
+ Emergency Procedures
+ Referencing the ZMP ATCSOP for tower positions at KMSP

Schedule: 60-120 minutes per instance of the lesson

Equipment: VRC, Teamspeak, TWRTrainer, reference to VATUSA, VATSIM, and ZMP websites.

Instructor/Mentor Actions:

The instructor or mentor shall observe the student in the MSP_TWR position. The instructor/mentor shall instruct and drill the student to proficiency and competency on all elements. The instructor or mentor may also elect to utilize TWRTrainer to simulate additional traffic for the student. Upon successful completion of the lesson, the instructor/mentor shall recommend the student for the S2 written and OTS Practical exams.

Student Actions:

The student shall work to attain proficiency and competency as an S2-rated controller. Upon recommendation of an instructor, the student shall take and pass the S2 written exam.

Completion Standards:

The lesson shall be completed when the student passes the S2 written exam and is prepared to take the S2 OTS practical exam. **This lesson shall be repeated as necessary to achieve completion standards.**

SECTION 5

SENIOR STUDENT RATING (S3) TRAINING SYLLABUS

5.1 Lesson Plans and Syllabus Outline

5.1.1 Overview

The lesson plans included in this section are intended to give students, mentors, and instructors guidance on training for the VATSIM/VATUSA Senior Student rating (S3). The lesson plans contained herein shall include the minimum training elements needed to meet controller ratings guidelines and competency standards. Additional material may be covered on a case-by-case basis, so long that the material is within the scope of controller duties as contemplated by FAA orders, VATSIM and VATUSA policies, and the ZMP ARTCC Air Traffic Operations Manual. Times noted in the “Schedule” section of each lesson plan indicate the estimated time necessary to cover all elements, and should be used as a guideline only.

5.1.2 Syllabus Outline

Lesson	General Subjects
S3.1	Radar Systems and Functions
S3.2	TRACON Facility Positions and Duties
S3.3	Departure Control
S3.4	Arrival Flows and Sequencing
S3.5	Instrument Approach Procedures
S3.6	Final Approach
S3.7	Holding Procedures
S3.8	S3 Practical Exam Prep

5.2 S3 Rating Lesson Plans

S3.1 Radar Systems and Functions

Objective: In this lesson the student will learn about different TRACON radar systems and the functionality of the radar client that is utilized as a radar position controller

Elements:
+ ARTS/CARTS
+ STARS
+ VRC Radar Modes
+ Aircraft Data Tags
+ Tracking Aircraft
+ Radar Tag Handoffs
+ Pointouts and Coordination
+ Conflict Alerts / Separation Rings
+ Airspace Filters
+ Video Map Review / Diagram Functions

Schedule: 60 minutes

Equipment: VRC, Teamspeak, reference to VATUSA, VATSIM, and ZMP websites.

Instructor/Mentor Actions:

The instructor or mentor shall have the student log into the MSP_DEP position. This may be done “live” on the VATSIM network or in the SWEATBOX environment. The instructor/mentor shall demonstrate and instruct the lesson elements to the student.

Student Actions:

The student shall work to understand the lesson elements, take notes, ask questions, and work with the instructor/mentor to meet the lesson objective

Completion Standards:

The lesson shall be completed when all elements are covered. Upon completion of the lesson, the student shall be able to demonstrate knowledge of the lesson elements.

5.2 S3 Rating Lesson Plans (continued)

S3.2 TRACON Facility Positions and Duties

Objective: In this lesson the student will learn about different TRACON controller positions and their duties.

Elements:
+ Departure Control
+ Feeder/Arrival Approach Control
+ Final Approach Control
+ Satellite Approach Control
+ Reference to M98 TRACON ATCSOP
+ Intra-facility coordination

Schedule: 30 minutes

Equipment: Teamspeak, reference to VATUSA, VATSIM, and ZMP websites.

Instructor/Mentor Actions:

The instructor or mentor shall conduct this as a “classroom” lesson, where the student is not logged into a live controlling position. The instructor/mentor shall demonstrate and instruct the lesson elements to the student.

Student Actions:

The student shall work to understand the lesson elements, take notes, ask questions, and work with the instructor/mentor to meet the lesson objective.

Completion Standards:

The lesson shall be completed when all elements are covered. Upon completion of the lesson, the student shall be able to demonstrate knowledge of the lesson elements.

5.2 S3 Rating Lesson Plans (continued)

S3.3 Departure Control

Objective: In this lesson the student will train “on the job” as a Departure Controller

Elements:
+ Position Setup and Login
+ Radar Identification
+ Use of Departure Gates
+ Vectoring onto departure routing/SIDs
+ Airspace management
+ Traffic conflicts and advisories
+ Spacing and sequencing
+ Coordination with adjacent TRACON positions
+ Coordination with Tower
+ Coordination with Center
+ Handoffs
+ Proper phraseology and communications

Schedule: 60-90 minutes per instance of the lesson

Equipment: VRC, Teamspeak, reference to VATUSA, VATSIM, and ZMP websites.

Instructor/Mentor Actions:

The instructor or mentor shall have the student log into the MSP_DEP position. This may be done “live” on the VATSIM network or in the SWEATBOX environment. The instructor/mentor shall demonstrate and instruct the lesson elements to the student, and if necessary, play the role of aircraft.

Student Actions:

The student shall work to understand the lesson elements, take notes, ask questions, and work with the instructor/mentor to meet the lesson objective. The student shall successfully demonstrate the ability to operate as a departure controller.

Completion Standards:

The lesson shall be completed when all elements are covered. Upon completion of the lesson, the student shall be able to demonstrate knowledge of the lesson elements and show competency as a departure controller. **This lesson shall be repeated as necessary to achieve completion standards.**

5.2 S3 Rating Lesson Plans (continued)

S3.4 Arrival Flows and Sequencing

Objective: In this lesson the student will learn proper techniques for the efficient flow and sequencing of aircraft from enroute airspace, into the terminal area, and arrangement for final approach vectors. This shall be done through “on the job” training.

Elements:
+ Reference of M98 TRACON ATCSOP
+ Arrival Gates
+ STARs
+ Traffic flows
+ Spacing and sequencing towards finals airspace
+ Coordination with adjacent TRACON positions

Schedule: 60-120 minutes per instance of the lesson

Equipment: VRC, Teamspeak, reference to VATUSA, VATSIM, and ZMP websites.

Instructor/Mentor Actions:

The instructor or mentor shall have the student log into the MSP_H_APP position. This may be done “live” on the VATSIM network or in the SWEATBOX environment. The instructor/mentor should log into the MSP_N_APP position. The instructor/mentor shall demonstrate and instruct the lesson elements to the student.

Student Actions:

The student shall work to understand the lesson elements, take notes, ask questions, and work with the instructor/mentor to meet the lesson objective.

Completion Standards:

The lesson shall be completed when all elements are covered. Upon completion of the lesson, the student shall be able to demonstrate knowledge of the lesson elements**.** The student shall successfully demonstrate the ability to operate as a feeder/arrival approach controller. **This lesson shall be repeated as necessary to achieve completion standards.**

5.2 S3 Rating Lesson Plans (continued)

S3.5 Instrument Approach Procedures

Objective: In this lesson the student will learn about instrument approach procedures, how to read IAP charts, and the function of terminal instrument procedures (TERPS).

Elements:
+ Reference of M98 TRACON ATCSOP
+ Reference of IAP charts for KMSP, KFCM, KMIC, KANE, KSTP
+ ILS Approaches
+ Non-Precision Approaches
+ Missed Approach Procedures
+ Equipment failure/out of service equipment

Schedule: 60 minutes

Equipment: Teamspeak, reference to VATUSA, VATSIM, and ZMP websites.

Instructor/Mentor Actions:

The instructor or mentor shall conduct this as a “classroom” lesson, where the student is not logged into a live controlling position. The instructor/mentor shall demonstrate and instruct the lesson elements to the student.

Student Actions:

The student shall work to understand the lesson elements, take notes, ask questions, and work with the instructor/mentor to meet the lesson objective.

Completion Standards:

The lesson shall be completed when all elements are covered. Upon completion of the lesson, the student shall be able to demonstrate knowledge of the lesson elements.

5.2 S3 Rating Lesson Plans (continued)

S3.6 Final Approach

Objective: In this lesson the student will train “on the job” as a Final Approach controller

Elements:
+ Reference of M98 TRACON ATCSOP
+ Proper sequencing and spacing, use of speed restrictions
+ Vectors to final approach
+ Approach clearance terminology (PTAC)

Schedule: 60-120 minutes per instance of the lesson

Equipment: VRC, Teamspeak, reference to VATUSA, VATSIM, and ZMP websites.

Instructor/Mentor Actions:

The instructor or mentor shall have the student log into the MSP_N_APP position. This may be done “live” on the VATSIM network or in the SWEATBOX environment. The instructor/mentor shall demonstrate and instruct the lesson elements to the student.

Student Actions:

The student shall work to understand the lesson elements, take notes, ask questions, and work with the instructor/mentor to meet the lesson objective.

Completion Standards:

The lesson shall be completed when all elements are covered. Upon completion of the lesson, the student shall be able to demonstrate knowledge of the lesson elements**.** The student shall successfully demonstrate the ability to operate as a final approach controller with supervision.

5.2 S3 Rating Lesson Plans (continued)

S3.7 Holding Procedures

Objective: In this lesson the student will train “on the job” as a Final Approach controller while learning the appropriate use of holding procedures

Elements:
+ Review/practice as final approach controller
+ Missed Approach procedures - review
+ Holding procedures

Schedule: 60-120 minutes per instance of the lesson

Equipment: VRC, Teamspeak, reference to VATUSA, VATSIM, and ZMP websites.

Instructor/Mentor Actions:

The instructor or mentor shall have the student log into the MSP_N_APP position. This may be done “live” on the VATSIM network or in the SWEATBOX environment. Observation of the student on final approach shall include instruction to refine skills, as well as new instruction on missed approach and holding procedures.

Student Actions:

The student shall work to understand the lesson elements, take notes, ask questions, and work with the instructor/mentor to meet the lesson objective.

Completion Standards:

The lesson shall be completed when all elements are covered. Upon completion of the lesson, the student shall be able to demonstrate knowledge of the lesson elements**.** The student shall successfully demonstrate the ability to operate as a final approach controller. **This lesson shall be repeated as necessary to achieve completion standards.**

5.2 S3 Rating Lesson Plans (continued)

S3.8 S3 Practical Exam Prep

Objective: In this lesson the student will prepare for the S3 practical exams

Elements:
+ Proper knowledge and use of radar systems
+ Radar identification
+ Tracking aircraft
+ Handoffs
+ Coordination and Pointouts
+ Traffic conflicts and advisories
+ Flight data management
+ Radar Vectoring
+ Sequencing and Separation of Departures
+ Sequencing and Separation of Arrivals
+ Traffic Flow
+ Speed Restrictions
+ Approach Vectoring
+ Precision Approaches
+ Non Precision Approaches
+ Missed Approach Procedures
+ Holding Procedures

Schedule: 120 minutes per instance of the lesson

Equipment: VRC, Teamspeak, reference to VATUSA, VATSIM, and ZMP websites.

Instructor/Mentor Actions:

The instructor or mentor shall observe the student in the MSP_N_APP position. The instructor/mentor shall instruct and drill the student to proficiency and competency on all elements. Upon successful completion of the lesson, the instructor/mentor shall recommend the student for the S3 written and OTS Practical exams.

Student Actions:

The student shall work to attain proficiency and competency as an S3-rated controller. Upon recommendation of an instructor, the student shall take and pass the S3 written exam.

Completion Standards:

The lesson shall be completed when the student passes the S3 written exam and is prepared to take the S3 OTS practical exam. **This lesson shall be repeated as necessary to achieve completion standards.**

END OF SECTION

SECTION 6

CONTROLLER RATING (C1) TRAINING SYLLABUS

6.1 Lesson Plans and Syllabus Outline

6.1.1 Overview

The lesson plans included in this section are intended to give students, mentors, and instructors guidance on training for the VATSIM/VATUSA Controller rating (C1). The lesson plans contained herein shall include the minimum training elements needed to meet controller ratings guidelines and competency standards. Additional material may be covered on a case-by-case basis, so long that the material is within the scope of controller duties as contemplated by FAA orders, VATSIM and VATUSA policies, and the ZMP ARTCC Air Traffic Operations Manual. Times noted in the "Schedule" section of each lesson plan indicate the estimated time necessary to cover all elements, and should be used as a guideline only.

6.1.2 Syllabus Outline

Lesson	General Subjects
C1.1	ARTCC Radar Systems and Functions
C1.2	ARTCC Airspace Sectors and Positions
C1.3	Enroute Operations
C1.4	Uncontrolled Airport Operations
C1.5	Military Operations
C1.6	Enroute Weather, NOTAMS, Advisories, TMU
C1.7	C1 Practical Exam Prep

6.2 C1 Rating Lesson Plans

C1.1 ARTCC Radar Systems and Functions

Objective: To introduce the student to the DSR radar system and its functions.

Elements:
+ Login as ARTCC observer
+ Set up VRC with appropriate settings for CTR
  - Visibility centers and settings
  - Sector file settings
+ Observe differences in DSR (Display System Replacement) display and understanding data tags

Schedule: 60 minutes

Equipment: VRC, Teamspeak, reference to VATUSA, VATSIM, and ZMP websites.

Instructor/Mentor Actions:

The instructor or mentor shall have the student set up as an observer on the VATSIM network, viewing the ZMP ARTCC using the CTR Sector file. The instructor/mentor shall log in as a CTR controller and demonstrate different uses of the DSR system.

Student Actions:

The student shall work to understand the lesson elements, take notes, ask questions, and work with the instructor/mentor to meet the lesson objective.

Completion Standards:

The lesson shall be completed when all elements are covered. Upon completion of the lesson, the student shall be able to demonstrate knowledge of the lesson elements.

6.2 C1 Rating Lesson Plans (continued)

C1.2 ARTCC Airspace Sectors and Positions

Objective: To acquaint the student with the ZMP ARTCC airspace sectors and positions

Elements:
+ Reference to the ZMP ATCSOP
+ ARTCC Airspace – general boundaries and geographic location
+ Airspace Responsibility and Delegation
+ High Enroute Sectors
+ Low Enroute Sectors
+ Positions and Staffing
+ Inter-facility Coordination (LOAs)

Schedule: 60 minutes

Equipment: Teamspeak, reference to VATUSA, VATSIM, and ZMP websites.

Instructor/Mentor Actions:

The instructor or mentor shall conduct this as a “classroom” lesson, where the student is not logged into a live controlling position. The instructor/mentor shall demonstrate and instruct the lesson elements to the student.

Student Actions:

The student shall work to understand the lesson elements, take notes, ask questions, and work with the instructor/mentor to meet the lesson objective.

Completion Standards:

The lesson shall be completed when all elements are covered. Upon completion of the lesson, the student shall be able to demonstrate knowledge of the lesson elements.

6.2 C1 Rating Lesson Plans (continued)

C1.3 Enroute Operations

Objective: In this lesson the student will train “on the job” as a Center Controller

Elements:
+ Position Setup and Login
+ Radar Identification
+ Inter-facility Coordination (ARTCC to ARTCC)
+ Intra-facility Coordination (with other ZMP controllers)
+ Enroute Vectoring
+ Airspace management
+ Traffic conflicts and advisories
+ Spacing and sequencing
+ Enroute Holding
+ Handoffs
+ Proper phraseology and communications
+ “Pop-Up” IFR Flights
+ VFR Flight Following
+ VFR On Top
+ Diversions (divert to alternate)

Schedule: 60-90 minutes per instance of the lesson

Equipment: VRC, Teamspeak, reference to VATUSA, VATSIM, and ZMP websites.

Instructor/Mentor Actions:

The instructor or mentor shall have the student log into the MSP_11_CTR (or equivalent) position. This may be done “live” on the VATSIM network or in the SWEATBOX environment. The instructor/mentor shall demonstrate and instruct the lesson elements to the student, and if necessary, play the role of aircraft.

Student Actions:

The student shall work to understand the lesson elements, take notes, ask questions, and work with the instructor/mentor to meet the lesson objective. The student shall successfully demonstrate a basic ability to operate as a center controller.

Completion Standards:

The lesson shall be completed when all elements are covered. Upon completion of the lesson, the student shall be able to demonstrate knowledge of the lesson elements.

6.2 C1 Rating Lesson Plans (continued)

C1.4 Uncontrolled Airport Operations

Objective: In this lesson the student will train “on the job” as a Center Controller, and focus on uncontrolled airport operations

Elements:
+ Position Setup and Login
+ Radar Identification
+ Inter-facility Coordination (ARTCC to ARTCC)
+ Intra-facility Coordination (with other ZMP controllers)
+ Enroute Vectoring
+ Airspace management
+ Traffic conflicts and advisories
+ Spacing and sequencing
+ Enroute holding
+ Handoffs
+ Proper phraseology and communications
+ IFR clearances from uncontrolled airports
    - Clearance void times and EDCTs
    - One-in-One-out Rule
+ Vectors to approaches
+ Approach clearances
+ IFR Cancellations

Schedule: 60-90 minutes per instance of the lesson

Equipment: VRC, Teamspeak, reference to VATUSA, VATSIM, and ZMP websites.

Instructor/Mentor Actions:

The instructor or mentor shall have the student log into the MSP_11_CTR (or equivalent) position. This may be done “live” on the VATSIM network or in the SWEATBOX environment. The instructor/mentor shall demonstrate and instruct the lesson elements to the student, and if necessary, play the role of aircraft.

Student Actions:

The student shall work to understand the lesson elements, take notes, ask questions, and work with the instructor/mentor to meet the lesson objective. The student shall successfully demonstrate a basic ability to operate as a center controller.

Completion Standards:

The lesson shall be completed when all elements are covered. Upon completion of the lesson, the student shall be able to demonstrate knowledge of the lesson elements.

6.2 C1 Rating Lesson Plans (continued)

C1.5 Military Operations

Objective: In this lesson the student will continue to train “on the job” as a Center Controller, and learn about military operations

Elements:
+ Position Setup and Login
+ Radar Identification
+ Inter-facility Coordination (ARTCC to ARTCC)
+ Intra-facility Coordination (with other ZMP controllers)
+ Enroute Vectoring
+ Airspace management
+ Traffic conflicts and advisories
+ Spacing and sequencing
+ Enroute holding
+ Handoffs
+ Proper phraseology and communications
+ IFR clearances from uncontrolled airports
+ Vectors to approaches
+ Approach clearances
+ IFR Cancellations
+ Military Operations Areas (MOAs)
+ Restricted Areas
+ In-Flight Military Operations and Manuevers

Schedule: 60-90 minutes per instance of the lesson

Equipment: VRC, Teamspeak, reference to VATUSA, VATSIM, and ZMP websites.

Instructor/Mentor Actions:

The instructor or mentor shall have the student log into the MSP_11_CTR (or equivalent) position. This may be done “live” on the VATSIM network or in the SWEATBOX environment. The instructor/mentor shall demonstrate and instruct the lesson elements to the student, and if necessary, play the role of aircraft.

Student Actions:

The student shall work to understand the lesson elements, take notes, ask questions, and work with the instructor/mentor to meet the lesson objective. The student shall successfully demonstrate a basic ability to operate as a center controller.

Completion Standards:

The lesson shall be completed when all elements are covered. Upon completion of the lesson, the student shall be able to demonstrate knowledge of the lesson elements and show competency as a departure controller.

6.2 C1 Rating Lesson Plans (continued)

C1.6 Enroute Weather, NOTAMS, Advisories, TMU

Objective: In this lesson the student will continue to train “on the job” as a Center Controller

Elements:
+ Position Setup and Login
+ Radar Identification
+ Inter-facility Coordination (ARTCC to ARTCC)
+ Intra-facility Coordination (with other ZMP controllers)
+ Enroute Vectoring
+ Airspace management
+ Traffic conflicts and advisories
+ Spacing and sequencing
+ Enroute holding
+ Handoffs
+ Proper phraseology and communications
+ IFR clearances from uncontrolled airports
+ Vectors to approaches
+ Approach clearances
+ IFR Cancellations
+ Enroute Weather:
    - METARs
    - TAFs
    - AIRMETs/SIGMETs
    - Convective SIGMETs
    - Center Weather Advisories
    - Weather Deviation Procedures
    - Turbulence Reports
    - PIREPs
+ NOTAMs
    - NOTAM Classes
    - NOTAM decoding/readback
+ TFRs
+ Gate Holds/Ground Stops/Delay Programs
+ ZMP “TMU” Procedures

Schedule: 60-120 minutes

Equipment: VRC, Teamspeak, reference to VATUSA, VATSIM, and ZMP websites.

Instructor/Mentor Actions:

The instructor or mentor shall have the student log into the MSP_11_CTR (or equivalent) position. This may be done “live” on the VATSIM network or in the SWEATBOX environment. The instructor/mentor shall demonstrate and instruct the lesson elements to the student, and if necessary, play the role of aircraft.

Student Actions:

The student shall work to understand the lesson elements, take notes, ask questions, and work with the instructor/mentor to meet the lesson objective. The student shall successfully demonstrate an ability to operate as a center controller.

Completion Standards:

The lesson shall be completed when all elements are covered. Upon completion of the lesson, the student shall be able to demonstrate knowledge of the lesson elements and show competency as a center controller.

6.2 C1 Rating Lesson Plans (continued)

C1.7 C1 Practical Exam Prep

Objective: In this lesson the student will continue to train “on the job” as a Center Controller

Elements:
+ Position Setup and Login
+ Radar Identification
+ Inter-facility Coordination (ARTCC to ARTCC)
+ Intra-facility Coordination (with other ZMP controllers)
+ Enroute Vectoring
+ Airspace management
+ Traffic conflicts and advisories
+ Spacing and sequencing
+ Enroute holding
+ Handoffs
+ Proper phraseology and communications
+ IFR clearances from uncontrolled airports
+ Vectors to approaches
+ Approach clearances
+ IFR Cancellations
+ “Pop-Up” IFR Flights
+ VFR Flight Following
+ VFR On Top
+ Diversions (divert to alternate)
+ Enroute Weather
+ NOTAMs

Schedule: 60-90 minutes per instance of the lesson

Equipment: VRC, Teamspeak, reference to VATUSA, VATSIM, and ZMP websites.

Instructor/Mentor Actions:

The instructor or mentor shall observe the student in the MSP_11_CTR (or equivalent) position. The instructor/mentor shall instruct and drill the student to proficiency and competency on all elements. Upon successful completion of the lesson, the instructor/mentor shall recommend the student for the C1 written, ZMP CTR Major facility certification written, and OTS Practical exams.

Student Actions:

The student shall work to attain proficiency and competency as an C1-rated controller. Upon recommendation of an instructor, the student shall take and pass the C1 and ZMP CTR Major facility certification written exams.

Completion Standards:

The lesson shall be completed when the student passes the written exams and is prepared to take the C1/ZMP CTR Major facility certification OTS practical exam. **This lesson shall be repeated as necessary to achieve completion standards.**

END OF SECTION

Appendix A
Student Progress Sheet

	NAME:	
LESSON	COMP	NOTES
S1.1		
S1.2		
S1.3		
S1.4		
S1.5		
S1.6		
S1.7		
S1.8		
TEST		
S3.1		
S3.2		
S3.3		
S3.4		
S3.5		
S3.6		
S3.7		
S3.8		
TEST		
C1.1		
C1.2		
C1.3		
C1.4		
C1.5		
C1.6		
C1.7		
TEST		

Appendix B
Student Rating Training Handouts/Materials

Appendix C
Senior Student Rating Training Handouts/Materials

Appendix D
Controller Rating Training Handouts/Materials

AUTHORIZATIONS

AUTHORIZATIONS

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