Public Works and Government Services Canada

Travaux publics et Services gouvernementaux Canada

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:
Public Works Government Services Canada- Bid Receiving / Réception des soumissions
189 Prince William Street
Room 405
Saint John
New Brunswick
E2L 2B9

SOLICITATION AMENDMENT
MODIFICATION DE L'INVITATION

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

Comments - Commentaires
This document contains a security requirement.
Ce document contient une condition de sécurité.

Vendor/Firm Name and Address
Raison sociale et adresse du fournisseur/de l'entrepreneur

Issuing Office - Bureau de distribution
Public Works Government Services Canada- Bid Receiving / Réception des soumissions
189 Prince William Street
Room 405
Saint John
New Bruns
E2L 2B9

Title - Sujet CFSME Gagetown Education Services	
Solicitation No. - N° de l'invitation W2037-150018/A	**Amendment No. - N° modif.** 001
Client Reference No. - N° de référence du client W2037-150018	**Date** 2014-07-15
GETS Reference No. - N° de référence de SEAG PW-$PWB-020-3447	
File No. - N° de dossier PWB-4-37024 (020)	**CCC No./N° CCC - FMS No./N° VME**
Solicitation Closes - L'invitation prend fin **at - à 02:00 PM** **on - le 2014-08-26**	**Time Zone** **Fuseau horaire** Atlantic Daylight Saving Time ADT
F.O.B. - F.A.B. **Plant-Usine:** ☐ **Destination:** ☐ **Other-Autre:** ☐	
Address Enquiries to: - Adresser toutes questions à: Donovan, Janine PWB	**Buyer Id - Id de l'acheteur** pwb020
Telephone No. - N° de téléphone (506) 636-5347 ( )	**FAX No. - N° de FAX** (506) 636-4376
Destination - of Goods, Services, and Construction: **Destination - des biens, services et construction:**	

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée	**Delivery Offered - Livraison proposée**
Vendor/Firm Name and Address **Raison sociale et adresse du fournisseur/de l'entrepreneur** **Telephone No. - N° de téléphone** **Facsimile No. - N° de télécopieur**	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) **Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)** **Signature** **Date**	

Canada

Cette modification de l'invitation numéro 1 est soumise et comprend la modification numéro 1 suivante.

La modification qui suit apportée aux documents de soumission entre en vigueur dès maintenant. L'addenda fera partie des documents de contrat. **Toutes autres conditions ne changent pas.**

Modification numéro 1

ANNEXE A - ÉNONCÉ DES TRAVAUX

AJOUTER les pièces jointes 1 à 15 suivants à l'annexe A - Énoncé des travaux.

Enclosure 1 – A401.06, Math, ED Tech Apprentice

EO 401.06

1. **Performance.** Apply Trade Related Mathematics
2. **Conditions**
   a. Given:
      (1) Supervision;
      (2) Assistance; and
      (3) References;
   b. Denied: nil ; and
   c. Environment: Day or night; static or deployed; and any weather.
3. **Standard**. With directives the apprentice shall apply trade related mathematics
4. **Lesson Objective/Teaching Points/References/ Methods/Time**

OCOM 401.06

1. **Rendement**.
2. **Conditions**
   a. **Éléments** fournis:
      (1)
      (2)
      (3)
   b. **Éléments non fournis :**
   c. **Environnement :**
3. **Norme**.
4.

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
a. Describe the use of the metric system.	C30				a.	
(1) Measuring and converting distances to and from the metric system;					(1)	
(2) Measuring and converting areas, to and from the metric system;					(2)	
(3) Measuring and converting volumes to and from the metric system; and					(3)	
(4) Measuring and converting mass to and from the metric system.					(4)	
(5) Solve trade related metric system math problems.					(5)	
b. Apply the metric system.	IAW references				b.	
c. Describe the use of fractions					c.	
(1) Solving problems with fractions					(1)	
(2) Equivalent fractions					(2)	
(3) Fundamental operations using fractions					(3)	
(4) Fundamental operations using mixed numbers					(4)	
d. Apply the use of fractions.	IAW references				d.	

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
e. Describe the use of decimals					e.	
(1) Reading and writing decimal numbers					(1)	
(2) Rounding off decimal numbers; and					(2)	
(3) Converting decimal numbers					(3)	
f. Apply the use of decimals	IAW references				f.	
g. Describe the use of ratio's, inverse and direct proportion					g.	
(1) Calculating gear, pulley and lever ratios; and					(1)	
(2) Calculating efficiencies					(2)	
h. Apply the use of ratio's, inverse and direct proportion	IAW references				h.	
i. Describe the use of percentages					i.	
(1) Finding percentages					(1)	
(2) Calculating with percentages					(2)	
j. Apply the use of percentages	IAW references				j.	
k. Describe the use of formulas					k.	
(1) Transformation of mathematical formulas; and					(1)	
(2) Application of mathematical formulas					(2)	
(3) Derivation of mathematical formulas					(3)	
l. Apply the use of formulas	IAW references				l.	
m. Describe the use of exponents					m.	
n. Apply the use of exponents	IAW references				n.	
o. Describe the use of triangle calculations					o.	
(1) laws of Pythagoras for 30-60-90 triangles;					(1)	
(2) laws of Pythagoras for 45-45-90 triangles; and					(2)	
(3) Laws of Pythagoras for 3-4-5 right angle triangles.					(3)	
p. Apply the use of triangle calculations	IAW references				p.	
q. Describe how to calculate areas					q.	
(1) Areas of squares					(1)	

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
(2) Areas of rectangles					(2)	
(3) Areas of circles					(3)	
r. Apply the use of area calculations	IAW references				r.	
s. Describe how to calculate volumes					s.	
(1) Volumes of cubical tanks					(1)	
(2) Volumes of rectangle tanks					(2)	
(3) Volumes of cylindrical tanks					(3)	
t. Apply the use of volume calculations	IAW references				t.	
u. Describe how to calculate capacities & weight of containers					u.	
v. Apply calculations for capacities & weight of containers	IAW references				v.	
w. Describe the interpreting of graphs and charts					w.	
(1) Types of graphs					(1)	
(2) reading graphs					(2)	
(3) creating and entering data on graphs					(3)	
x. Apply the interpretation of graphs and charts	IAW references				x.	
SUB-TOTAL TIMINGS						
TOTAL TIMINGS		**1700**				

5. **Substantiation**. Participative lecture is the most effective method of introducing new material while encouraging training involvement. Demonstration allows the trainees to visualize the concept covered and put them into a conceptual framework. Practical exercises allow the trainee to practice new skills under supervision.

5. **Justification**.

6. **Training Aids**

a. White board;

b. References (C43);

c. Audiovisual suite and computer; and

d. VCR/projector;

6. **Matériel d'instruction**

a.

b.

c.

d.

7. **Learning Aids.**

7. **Matériel d'apprentissage**.

8. **Test details.** Summative, See Chapter 3 for details.

8. **Modalité de contrôle**.

9. **Remarks**: This EO will be contracted out with a civilian instructor with a set time frame of 1600 min / 4 days to prepare the apprentices in mathematic to achieve a standard of 70% on a written exam. The instructor will tailor the package to the specific trade related math required.

9. **Remarque :** Aucune.

Enclosure 2 – A401.05, Math, EGS Tech Apprentice

EO 401.05

1. **Performance.** Apply Common Mathematics

2. **Conditions**

   a. Given:

      (1) Supervision;

      (2) Assistance; and

      (3) References;

   b. Denied: nil ; and

   c. Environment: Day or night; static or deployed; and any weather.

3. **Standard**. With directives the apprentice shall apply trade related mathematics

4. **Lesson Objective/Teaching Points/References/ Methods/Time**

OCOM 401.05

1. **Rendement**.

2. **Conditions**

   a. **Éléments** fournis :

      (1)

      (2)

      (3)

   b. **Éléments non fournis :**

   c. **Environnement :**

3. **Norme**.

4.

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
a. Describe the use of the metric system.	C30				a.	
(1) Measuring and converting distances to and from the metric system;					(1)	
(2) Measuring and converting areas, to and from the metric system;					(2)	
(3) Measuring and converting volumes to and from the metric system; and					(3)	
(4) Measuring and converting mass to and from the metric system.					(4)	
(5) Solve trade related metric system math problems.					(5)	
b. Apply the metric system.	IAW references				b.	
c. Describe the use of fractions					c.	
(1) Solving problems with fractions					(1)	
(2) Equivalent fractions					(2)	
(3) Fundamental operations using fractions					(3)	

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
(4) Fundamental operations using mixed numbers					(4)	
d. Apply the use of fractions.	IAW references				d.	
e. Describe the use of decimals					e.	
(1) Reading and writing decimal numbers					(1)	
(2) Rounding off decimal numbers; and					(2)	
(3) Converting decimal numbers					(3)	
f. Apply the use of decimals	IAW references				f.	
g. Describe the use of ratio's, inverse and direct proportion					g.	
(1) Calculating gear, pulley and lever ratios; and					(1)	
(2) Calculating efficiencies					(2)	
h. Apply the use of ratio's, inverse and direct proportion	IAW references				h.	
i. Describe the use of percentages					i.	
(1) Finding percentages					(1)	
(2) Calculating with percentages					(2)	
j. Apply the use of percentages	IAW references				j.	
k. Describe the use of formulas					k.	
(1) Transformation of mathematical formulas; and					(1)	
(2) Application of mathematical formulas					(2)	
(3) Derivation of mathematical formulas					(3)	
l. Apply the use of formulas	IAW references				l.	
m. Describe the use of exponents					m.	
n. Apply the use of exponents	IAW references				n.	
o. Describe the use of triangle calculations					o.	
(1) laws of Pythagoras for 30-60-90					(1)	

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
triangles;						
(2) laws of Pythagoras for 45-45-90 triangles; and					(2)	
(3) Laws of Pythagoras for 3-4-5 right angle triangles.					(3)	
p. Apply the use of triangle calculations	IAW references				p.	
q. Describe how to calculate areas					q.	
(1) Areas of squares					(1)	
(2) Areas of rectangles					(2)	
(3) Areas of circles					(3)	
r. Apply the use of area calculations	IAW references				r.	
s. Describe how to calculate volumes					s.	
(1) Volumes of cubical tanks					(1)	
(2) Volumes of rectangle tanks					(2)	
(3) Volumes of cylindrical tanks					(3)	
t. Apply the use of volume calculations	IAW references				t.	
u. Describe how to calculate capacities & weight of containers					u.	
v. Apply calculations for capacities & weight of containers	IAW references				v.	
w. Describe the interpreting of graphs and charts					w.	
(1) Types of graphs					(1)	
(2) reading graphs					(2)	
(3) creating and entering data on graphs					(3)	
x. Apply the interpretation of graphs and charts	IAW references				x.	
y. Apply dimensional analysis	IAW references				y.	
z. Apply the use of Trigonometry	IAW references				z.	
(1) With acute, obtuse and reflex angles					aa.	
SUB-TOTAL TIMINGS						

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
TOTAL TIMINGS		**2200**				

5. **Substantiation**. Participative lecture is the most effective method of introducing new material while encouraging training involvement. Demonstration allows the trainees to visualize the concept covered and put them into a conceptual framework. Practical exercises allow the trainee to practice new skills under supervision.

5. **Justification**.

6. **Training Aids**

   a. White board;

   b. References;

   c. Audiovisual suite and computer; and

   d. VCR/projector;

6. **Matériel d'instruction**

   a.

   b.

   c.

   d.

7. **Learning Aids.**

7. **Matériel d'apprentissage**.

8. **Test details:**

   a. Summative, See Chapter 3 for details.

   b. Formative Test: End of lesson confirmation by instructor.

8. **Modalité de contrôle**.

9.

10.

9. **Remarks**: This EO can be contracted out with a civilian instructor with a set time frame of 2200 min to prepare the apprentices in mathematic to achieve a standard of 70% on a written exam.

11. **Remarque :** Aucune.

Enclosure 3 – A600.04, Math, PH Tech Apprentice

COURSE TITLE:	00304 PLUMBING AND HEATING TECHNICIAN APPRENTICE
EO NUMBER:	A600:04
LATEST AMENDMENT/DATE:	AL# Reviewed with no changes 30 Aug 00
INSTRUCTIONAL CELL:	MATH CELL

1. PERFORMANCE: Apply Trade Related Mathematics.

2. CONDITIONS:

a. given:
(1) References.

b. environment:
(1) N/A

c. denied:
(1) nil.

3. STANDARD: IAW specified references the Apprentice shall apply trade related mathematics to include:

a. solving trade related metric system math problems; and
b. solving trade related mathematical problems.

4. TEACHING POINTS TIMINGS AND METHOD OF INSTRUCTION: Timings and method of instruction for the teaching points of this EO are broken down as follows:

SER	TEACHING POINTS	L	D	P	REFERENCES
.01	Solving trade related metric system math problems	100		125	C871 CFSME Metric System Precis Handouts
a	Measuring and converting distances to and from the metric system				
b	Measuring and converting areas, to and from the metric system				
c	Measuring and converting volumes to and from the metric system				
d	Measuring and converting mass to and from the metric system				
.02	Solving trade related mathematical problems	800		625	C609, C623, C622 and Handouts
a	Solving problems with fractions (1) equivalent fractions (2) fundamental operations using fractions (3) fundamental operations using mixed numbers				
b	Solving problems with decimals (1) Reading and writing decimal numbers (2) Rounding off decimal numbers				

SER	TEACHING POINTS	L	D	P	REFERENCES
	(3) Converting decimal numbers				
c	Solving problems using ratio's, inverse and direct proportion				
	(1) Calculating gear, pulley and lever ratios				
	(2) Calculating efficiencies				
d	Solving problems with percentages				
	(1) Finding percentages				
	(2) Calculating with percentages				
e	Solving problems using formulas				
	(1) Derivation of mathematical formulas				
	(2) Transformation of mathematical formulas				
	(3) Application of mathematical formulas				
f	Solving problems using exponents				
g	Solving problems using triangle calculations				
	(1) laws of pythagoras for 30-60-90 triangles				
	(2) laws of pythagoras for 45-45-90 triangles				
	(3) laws of pythagoras for 3-4-5 right angle triangles				
h	Calculating areas				
	(1) Areas of squares				
	(2) Areas of rectangles				
	(3) Areas of circles				
I	Calculating volumes				
	(1) Volumes of cubical tanks				
	(2) Volumes of rectangle tanks				
	(3) Volumes of cylindrical tanks				
J	Calculating capacities & weights of containers.				
K	Interpreting graphs and charts				
	(1) types of graphs				
	(2) reading graphs				
	(3) creating and entering data on grafts				
	EC			**200**	
	Total Time in minutes	**900**	**0**	**950**	**1850**

	TOTAL (Day time periods)				**37**
***Must be same as total day time in para 5**					

5. METHOD/TIME OF APPROACH:

METHOD	TIME IN PERIODS			Grouping	I/S Ratio	Location
	Day	Night	Totals			
Lecture	**18.0**		18.0	Class	1/C	Classroom
Demo	**0.0**		0.0	Class	1/C	Classroom
Practice	**15.0**		15.0	Indiv	1/C	Classroom
Homework (Night)	**0**	**20.0**	20.0	Indiv	0/C	Quarters
EC	**4.0**		4.0	Indiv	1/C	Classroom
TOTAL TIME	**37.0**	**20.0**	57	**Time in "day' column" = Ch 2 Anx A Crse length**		

6. TRAINING AIDS:

a. OHPs;
b. Handouts; and
c. whiteboard. .

7. LEARNING AIDS:

a. handouts;
b. precis; and
c. references.

8. TEST DETAILS:

a. type: Written;Part A (two Periods)
Written;Part B (two Periods)
b. loc: classroom;
c. % pass: 70%,
d. reqts: nil.

9. REMARKS:

a. Special Instructions:

(1) This EO will be evaluated by 2 periods exams with the metric portion comprizing no more than 10% of the total test.

b. Administrative Requirements:

(1) material: nil;
(2) tools: nil;
(3) equipment: Scientific Calculator;
(4) trg areas: nil;
(5) transport: nil; and
(6) rations: nil.

Enclosure 4 – A401.06, Math, WFE Tech Apprentice

EO 401.06

1. **Performance.** Apply Trade Related Mathematics
2. **Conditions**
   a. Given:
      (1) Supervision;
      (2) Assistance; and
      (3) References;
   b. Denied: nil ; and
   c. Environment: Day or night; static or deployed; and any weather.
3. **Standard**. With directives the apprentice shall apply trade related mathematics
4. **Lesson Objective/Teaching Points/References/ Methods/Time**

OCOM 401.06

1. **Rendement**.
2. **Conditions**
   a. **Éléments** fournis:
      (1)
      (2)
      (3)
   b. **Éléments non fournis :**
   c. **Environnement :**
3. **Norme**.
4.

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
a. Describe the use of the metric system.	C30				a.	
(1) Measuring and converting distances to and from the metric system;					(1)	
(2) Measuring and converting areas, to and from the metric system;					(2)	
(3) Measuring and converting volumes to and from the metric system; and					(3)	
(4) Measuring and converting mass to and from the					(4)	

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
metric system.						
(5) Solve trade related metric system math problems.					(5)	
b. Apply the metric system.	IAW references				b.	
c. Describe the use of fractions					c.	
(1) Solving problems with fractions					(1)	
(2) Equivalent fractions					(2)	
(3) Fundamental operations using fractions					(3)	
(4) Fundamental operations using mixed numbers					(4)	
d. Apply the use of fractions.	IAW references				d.	
e. Describe the use of decimals					e.	
(1) Reading and writing decimal numbers					(1)	
(2) Rounding off decimal numbers; and					(2)	
(3) Converting decimal numbers					(3)	
f. Apply the use of decimals	IAW references				f.	
g. Describe the use of ratio's, inverse and direct proportion					g.	
(1) Calculating gear, pulley and lever ratios; and					(1)	
(2) Calculating efficiencies					(2)	

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
h. Apply the use of ratio's, inverse and direct proportion	IAW references				h.	
i. Describe the use of percentages					i.	
(1) Finding percentages					(1)	
(2) Calculating with percentages					(2)	
j. Apply the use of percentages	IAW references				j.	
k. Describe the use of formulas					k.	
(1) Transformation of mathematical formulas; and					(1)	
(2) Application of mathematical formulas					(2)	
(3) Derivation of mathematical formulas					(3)	
l. Apply the use of formulas	IAW references				l.	
m. Describe the use of exponents					m.	
n. Apply the use of exponents	IAW references				n.	
o. Describe the use of triangle calculations					o.	
(1) laws of Pythagoras for 30-60-90 triangles;					(1)	
(2) laws of Pythagoras for 45-45-90 triangles; and					(2)	
(3) Laws of Pythagoras for 3-4-5 right angle triangles.					(3)	
p. Apply the use of triangle calculations	IAW				p.	

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
	references					
q. Describe how to calculate areas					q.	
(1) Areas of squares					(1)	
(2) Areas of rectangles					(2)	
(3) Areas of circles					(3)	
r. Apply the use of area calculations	IAW references				r.	
s. Describe how to calculate volumes					s.	
(1) Volumes of cubical tanks					(1)	
(2) Volumes of rectangle tanks					(2)	
(3) Volumes of cylindrical tanks					(3)	
t. Apply the use of volume calculations	IAW references				t.	
u. Describe how to calculate capacities & weight of containers					u.	
v. Apply calculations for capacities & weight of containers	IAW references				v.	
w. Describe the interpreting of graphs and charts					w.	
(1) Types of graphs					(1)	
(2) reading graphs					(2)	
(3) creating and entering data on graphs					(3)	
x. Apply the interpretation of graphs and charts	IAW references				x.	
SUB-TOTAL TIMINGS						
TOTAL TIMINGS		**1700**				

5. **Substantiation**. Participative lecture is the most effective method of introducing new material while encouraging training involvement. Demonstration allows the trainees to visualize the concept covered and put them into a conceptual framework. Practical exercises allow the trainee to practice new skills under supervision.

5. **Justification**.

6. **Training Aids**

a. White board;

b. References (C43);

c. Audiovisual suite and computer; and

d. VCR/projector;

6. **Matériel d'instruction**

a.

b.

c.

d.

7. **Learning Aids.**

7. **Matériel d'apprentissage**.

8. **Test details.** Summative, See Chapter 3 for details.

8. **Modalité de contrôle**.

9. **Remarks**: This EO will be contracted out with a civilian instructor with a set time frame of 1600 min / 4 days to prepare the apprentices in mathematic to achieve a standard of 70% on a written exam. The instructor will tailor the package to the specific trade related math required.

9. **Remarque :** Aucune.

Enclosure 5 – A401.05, Math, RM Tech Apprentice

EO 401.05

1. **Performance.** Apply Common Mathematics

2. **Conditions**

   a. Given:

      (1) Supervision;

      (2) Assistance; and

      (3) References;

   b. Denied: nil ; and

   c. Environment: Day or night; static or deployed; and any weather.

3. **Standard**. With directives the apprentice shall apply trade related mathematics

4. **Lesson Objective/Teaching Points/References/ Methods/Time**

OCOM 401.05

1. **Rendement**.

2. **Conditions**

   a. **Éléments** fournis :

      (1)

      (2)

      (3)

   b. **Éléments non fournis :**

   c. **Environnement :**

3. **Norme**.

4.

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
a. Describe the use of the metric system.	C30				a.	
(1) Measuring and converting distances to and from the metric system;					(1)	
(2) Measuring and converting areas, to and from the metric system;					(2)	
(3) Measuring and converting volumes to and from the metric system; and					(3)	
(4) Measuring and converting mass to and from the metric system.					(4)	
(5) Solve trade related metric system math problems.					(5)	
b. Apply the metric system.	IAW references				b.	
c. Describe the use of fractions					c.	
(1) Solving problems with fractions					(1)	
(2) Equivalent fractions					(2)	
(3) Fundamental operations using fractions					(3)	

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
(4) Fundamental operations using mixed numbers					(4)	
d. Apply the use of fractions.	IAW references				d.	
e. Describe the use of decimals					e.	
(1) Reading and writing decimal numbers					(1)	
(2) Rounding off decimal numbers; and					(2)	
(3) Converting decimal numbers					(3)	
f. Apply the use of decimals	IAW references				f.	
g. Describe the use of ratio's, inverse and direct proportion					g.	
(1) Calculating gear, pulley and lever ratios; and					(1)	
(2) Calculating efficiencies					(2)	
h. Apply the use of ratio's, inverse and direct proportion	IAW references				h.	
i. Describe the use of percentages					i.	
(1) Finding percentages					(1)	
(2) Calculating with percentages					(2)	
j. Apply the use of percentages	IAW references				j.	
k. Describe the use of formulas					k.	
(1) Transformation of mathematical formulas; and					(1)	
(2) Application of mathematical formulas					(2)	
(3) Derivation of mathematical formulas					(3)	
l. Apply the use of formulas	IAW references				l.	
m. Describe the use of exponents					m.	
n. Apply the use of exponents	IAW references				n.	
o. Describe the use of triangle calculations					o.	
(1) laws of Pythagoras for 30-60-90					(1)	

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
triangles;						
(2) laws of Pythagoras for 45-45-90 triangles; and					(2)	
(3) Laws of Pythagoras for 3-4-5 right angle triangles.					(3)	
p. Apply the use of triangle calculations	IAW references				p.	
q. Describe how to calculate areas					q.	
(1) Areas of squares					(1)	
(2) Areas of rectangles					(2)	
(3) Areas of circles					(3)	
r. Apply the use of area calculations	IAW references				r.	
s. Describe how to calculate volumes					s.	
(1) Volumes of cubical tanks					(1)	
(2) Volumes of rectangle tanks					(2)	
(3) Volumes of cylindrical tanks					(3)	
t. Apply the use of volume calculations	IAW references				t.	
u. Describe how to calculate capacities & weight of containers					u.	
v. Apply calculations for capacities & weight of containers	IAW references				v.	
w. Describe the interpreting of graphs and charts					w.	
(1) Types of graphs					(1)	
(2) reading graphs					(2)	
(3) creating and entering data on graphs					(3)	
x. Apply the interpretation of graphs and charts	IAW references				x.	
y. Apply dimensional analysis	IAW references				y.	
z. Apply the use of Trigonometry	IAW references				z.	
(1) With acute, obtuse and reflex angles					aa.	
SUB-TOTAL TIMINGS						

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
TOTAL TIMINGS		**2200**				

5. **Substantiation**. Participative lecture is the most effective method of introducing new material while encouraging training involvement. Demonstration allows the trainees to visualize the concept covered and put them into a conceptual framework. Practical exercises allow the trainee to practice new skills under supervision.

5. **Justification**.

6. **Training Aids**

   a. White board;

   b. References;

   c. Audiovisual suite and computer; and

   d. VCR/projector;

6. **Matériel d'instruction**

   a.

   b.

   c.

   d.

7. **Learning Aids.**

7. **Matériel d'apprentissage**.

8. **Test details:**

   a. Summative, See Chapter 3 for details.

   b. Formative Test: End of lesson confirmation by instructor.

8. **Modalité de contrôle**.

9.

10.

9. **Remarks**: This EO can be contracted out with a civilian instructor with a set time frame of 2200 min to prepare the apprentices in mathematic to achieve a standard of 70% on a written exam.

11. **Remarque :** Aucune.

Enclosure 6 – A401.05, Math, Const Tech Apprentice

EO 401.05

1. **Performance.** Apply Trade Related Mathematics

2. **Conditions**

   a. Given:

      (1) Supervision;

      (2) Assistance; and

      (3) References;

   b. Denied: nil

   c. Environment: In classroom at CFSME.

3. **Standard**. The student shall apply trade related mathematics:

4. **Lesson Objective/Teaching Points/References/ Methods/Time**

OCOM xxx.01

1. **Rendement**.

2. **Conditions**

   a. Éléments fournis:

      (1)

   b. Éléments non fournis :

   c. Environnement :

3. **Norme**.

4.

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
a. Describe the use of the metric system. (1) Measuring and converting distances to and from the metric system; (2) Measuring and converting areas, to and from the metric system;	C30					
(3) Measuring and converting volumes to and from the metric system; and						
(4) Measuring and converting mass to and from the metric system.						
(5) Solve trade related metric system math problems.						
b. Apply the metric system.	IAW references					
c. Describe the use of fractions						
(1) Solving problems with fractions						
(2) Equivalent fractions						
(3) Fundamental operations using fractions						
(4) Fundamental operations using mixed numbers						

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
d. Apply the use of fractions.	IAW references					
e. Describe the use of decimals						
(1) Reading and writing decimal numbers						
(2) Rounding off decimal numbers; and						
(3) Converting decimal numbers						
f. Apply the use of decimals	IAW references					
g. Describe the use of ratio's, inverse and direct proportion						
(1) Calculating gear, pulley and lever ratios; and						
(2) Calculating efficiencies						
h. Apply the use of ratio's, inverse and direct proportion	IAW references					
i. Describe the use of percentages						
(1) Finding percentages						
(2) Calculating with percentages						
j. Apply the use of percentages	IAW references					
k. Describe the use of formulas						
(1) Transformation of mathematical formulas; and						
(2) Application of mathematical formulas						
(3) Derivation of mathematical formulas						
l. Apply the use of formulas	IAW references					
m. Describe the use of exponents						
n. Apply the use of exponents	IAW references					
o. Describe the use of Trigonometry						
(1) laws of Pythagoras for 30-60-90 triangles;						
(2) laws of Pythagoras for 45-45-90 triangles; and						
(3) Laws of Pythagoras for 3-4-5 right angle triangles.						

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
p. Apply the use of Trigonometry	IAW references					
q. Describe how to calculate areas						
(1) Areas of squares						
(2) Areas of rectangles						
(3) Areas of circles						
r. Apply the use of area calculations	IAW references					
s. Describe how to calculate volumes						
(1) Volumes of cubical tanks						
(2) Volumes of rectangle tanks						
(3) Volumes of cylindrical tanks						
t. Apply the use of volume calculations	IAW references					
u. Describe how to calculate capacities & weight of containers						
v. Apply calculations for capacities & weight of containers	IAW references					
w. Describe the interpreting of graphs and charts						
(1) Types of graphs						
(2) reading graphs						
(3) creating and entering data on graphs						
x. Apply the interpretation of graphs and charts	IAW references					
SUB-TOTAL TIMINGS						
EO Written Test						
TOTAL TIMINGS		**1600**				

5. **Substantiation**. Participative lecture is the most effective method of introducing new material while encouraging training involvement. Demonstration allows the trainees to visualize the concept covered and put them into a conceptual framework. Practical exercises allow the trainee to practice new skills under supervision.

5. **Justification**.

6. **Training Aids**

   a. White board.

   b. Audiovisual suite and computer; and

   c. VCR/projector;

6. **Matériel d'instruction**

   a.

   b.

   c.

7. **Learning Aids.**

7. **Matériel d'apprentissage**.

8. **Test details.** Summative Test

8. **Modalité de contrôle**.

9. **Remarks**: This EO will be contracted out with a civilian instructor with a set time frame of 1600 min / 4 days to prepare the students in mathematic to achieve a standard of 70% on a written exam.

9. **Remarque :** Aucune.

Enclosure 7 – A401.08, Physics, ED Tech Apprentice

EO 401.08

1. **Performance.** Solve Trade Related Physics Problems
2. Conditions
   a. Given:
      (1) Supervision;
      (2) Assistance; and
      (3) References;
   b. Denied: nil ; and
   c. Environment: Day or night; static or deployed; and any weather.
3. **Standard**. With directives the apprentice shall apply trade related physics by:
   a. Solving problems relating to density;
   b. Solving problems relating to pressure;
   c. Solving problems relating to power; and
   d. Solving problems relating to heat.
4. **Lesson Objective/Teaching Points/References/ Methods/Time**

OCOM 401.08

1. **Rendement**.
2. Conditions
   a. **Éléments fournis:**
      (1)
      (2)
      (3)
   b. **Éléments non fournis :**
   c. **Environnement :**
3. **Norme**.
   a.
   b.
   c.
   d.
4.

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
a. Solve problems relating to density, expanding on:	C37, C38, C39, C40, & C41.	50		350	a.	
(1) density;					(1)	
(2) relative density;					(2)	
(3) hydrometer;					(3)	
(4) forces: and					(4)	
(5) acceleration.					(5)	
b. Solve problems relating to pressures, expanding on:	C37, C38, C39, C40, & C41.	50		300	b.	
(1) Pressure;					(1)	
(2) Pressure in liquid;					(2)	
(3) Pascal's law;					(3)	
(4) Hydraulic pressure;					(4)	
(5) Pressure in gases;					(5)	
(6) Boyle's law;					(6)	

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
(7) Atmospheric pressure; and					(7)	
(8) Gauge pressure to absolute.					(8)	
c. Solve problems relating to power and heat, expanding on:	C42	50		300	c.	
(1) Work;					(1)	
(2) Power;					(2)	
(3) Energy;					(3)	
(4) Heat;					(4)	
(5) Temperature;					(5)	
(6) Sensing devices;					(6)	
(7) Expansion of solids and liquids;					(7)	
(8) Expansion of gases;					(8)	
(9) Law of partial pressure;					(9)	
(10) Vapour pressure;					(10)	
(11) Heat quantity;					(11)	
(12) Latent heat, specific heat; and					(12)	
(13) Heat transfer to include:					(13)	
(a) Conduction;					(a)	
(b) Convection; and					(b)	
(c) Radiation.					(c)	
SUB-TOTAL TIMINGS		**150**		**1050**		
TOTAL TIMINGS		**1200**				

5. **Substantiation**. Participative lecture is the most effective method of introducing new material while encouraging training involvement. Demonstration allows the trainees to visualize the concept covered and put them into a conceptual framework. Practical exercises allow the trainee to practice new skills under supervision.

5. **Justification**.

6. **Training Aids**

   a. White board.

   b. Audiovisual suite and computer; and

   c. VCR/projector;

6. **Matériel d'instruction**

   a.

   b.

   c.

7. **Learning Aids.**

   a. Hand outs/précis;

   b. Physics PIP;

7. **Matériel d'apprentissage**.

   a.

   b.

c. References (C43); and

c.

d. Calculators will be supplied by the Tech Section.

d.

8. **Test details.** Summative Test

8.

a. Written (2 pds);

a.

b. Administration of test will be done by the instructor in conjunction with the Stds Rep and/or Course NCO; and

b.

c. References – denied.

c.

9. **Remarks**: This EO will be contracted out with a civilian instructor with a set time frame, to prepare the apprentices in physics relative problems, to achieve a standard of 70% on a written exam. The instructor will tailor the package to the specific trade related physics required.

9. **Remarque :** Aucune.

Enclosure 8 – A401.06, Physics, EGS Tech Apprentice

EO 401.06

1. **Performance.** Solve Common Physics Problems
2. Conditions
   a. Given:
      (1) Supervision;
      (2) Assistance; and
      (3) References;
   b. Denied: nil ; and
   c. Environment: Day or night; static or deployed; and any weather.
3. **Standard**. With directives the apprentice shall apply trade related physics by:
   a. Solving problems relating to density;
   b. Solving problems relating to pressure;
   c. Solving problems relating to power; and
   d. Solving problems relating to heat.
4. **Lesson Objective/Teaching Points/References/ Methods/Time**

OCOM 401.06

1. **Rendement**.
2. Conditions
   a. **Éléments fournis:**
      (1)
      (2)
      (3)
   b. **Éléments non fournis :**
   c. **Environnement :**
3. **Norme**.
   a.
   b.
   c.
   d.
4.

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
a. Solve problems relating to density, expanding on:	C20	50		350	a.	
(1) density;					(1)	
(2) relative density;					(2)	
(3) hydrometer;					(3)	
(4) forces: and					(4)	
(5) acceleration.					(5)	
b. Solve problems relating to pressures, expanding on:	C20	50		300	b.	
(1) Pressure;					(1)	
(2) Pressure in liquid;					(2)	
(3) Pascal's law;					(3)	
(4) Hydraulic pressure;					(4)	
(5) Pressure in gases;					(5)	
(6) Boyle's law;					(6)	
(7) Atmospheric pressure; and					(7)	
(8) Gauge pressure to absolute.					(8)	

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
c. Solve problems relating to power and heat, expanding on:	C20	50		300	c.	
(1) Work;					(1)	
(2) Power;					(2)	
(3) Energy;					(3)	
(4) Heat;					(4)	
(5) Temperature;					(5)	
(6) Sensing devices;					(6)	
(7) Expansion of solids and liquids;					(7)	
(8) Expansion of gases;					(8)	
(9) Law of partial pressure;					(9)	
(10) Vapour pressure;					(10)	
(11) Heat quantity;					(11)	
(12) Latent heat, specific heat; and					(12)	
(13) Heat transfer to include:					(13)	
(a) Conduction;					(a)	
(b) Convection; and					(b)	
(c) Radiation.					(c)	
SUB-TOTAL TIMINGS		**150**		**1050**		
TOTAL TIMINGS		**1200**				

5. **Substantiation**. Participative lecture is the most effective method of introducing new material while encouraging training involvement. Demonstration allows the trainees to visualize the concept covered and put them into a conceptual framework. Practical exercises allow the trainee to practice new skills under supervision.

5. **Justification**.

6. **Training Aids**

a. White board.

b. Audiovisual suite and computer; and

c. VCR/projector;

6. **Matériel d'instruction**

a.

b.

c.

7. **Learning Aids.**

a. Hand outs/précis;

b. Physics PIP;

c. References; and

d. Calculators will be supplied by the Tech Section.

7. **Matériel d'apprentissage**.

a.

b.

c.

d.

8. **Test details:**

a. Summative Test: See Chapter 3 for details.

b. Formative Test: End of lesson

8.

a.

b.

confirmation by instructor.

9. **Remarks**:

   a. This EO can be contracted out to a civilian instructor with a set time frame, to prepare the apprentices in physics relative problems, to achieve a standard of 70% on a written exam.

   b. This EO is only required for Trades 00301, 00302, 00303, 00304 and 00305.

9. **Remarque :** Aucune.

10.

11.

Enclosure 9 – J204.04, Physics, ED Tech Journeyman

COURSE TITLE	**ELECTRICAL DISTRIBUTION TECHNICIAN JOURNEYMAN**
EO NUMBER	**J204.04**
LATEST AMENDMENT/DATE	**AL #**
INSTRUCTIONAL CELL	**ED TECH**

1. PERFORMANCE: Solve Physics Problems

2. CONDITIONS:

a. Given: references;

b. Environment: N/A;

c. Denied: nil.

3. STANDARD: IAW specified references the Journeyman shall solve physics problems relating to the mechanical advantage, efficiency, levers, pulleys, and gears.

4. TEACHING POINTS TIMINGS AND METHOD OF INSTRUCTION: Timings and method of instruction for the teaching points of this EO are broken down as follows:

SER	TEACHING POINTS	L	D	P	REFERENCES
.01	Define terms relating to mechanical advantage				C727 Mod 1Pg 33 to 34
a.	Work Input				
b.	Power Input				
c.	Work Output	50			
d.	Power Output				
e.	Energy Losses				
f.	Efficiency				
.02	Solve simple problems associated with efficiency		55	70	C727 Mod 1 Pg 35 to 39
.03	Describe three classes of levers	30			C727 Mod 1 Pg 40 to 41
.04	Solve simple problems involving different classes of levers		55	70	C727 Mod 42 Pg 45
.05	Describe simple pulley systems	30			C727 Mod 1 Pg 46 to 47
.06	Calculate the mechanical advantage obtained by utilizing simple pulley systems		55	70	C727 Mod 1 Pg 48 to 52
.07	Describe simple motor-driven, V-belt driven systems				C727 Mod 1 Pg 53 to 60
a.	Pulley speed	10			
b.	Pulley torque	10			
c.	Gears	10			

SER	TEACHING POINTS	L	D	P	REFERENCES
.08	Calculate the speed and torque of pulleys within a system		55	80	C727 Mod 1 Pg 56 to 60
	EC			50	
	EC Review	25			
	Total Time in Minutes	**165**	**220**	**340**	**=**725 minutes

TOTAL (Day time periods) *Must be same as total day time in para 5	**14.5**

5. METHOD/TIME OF APPROACH:

METHOD	TIME IN PERIODS			Grouping	I/S Ratio	Location
	Day	Night	Totals			
Lecture	**2.8**		**2.8**	Class	1/C	C 220
Demo	**4.4**		**4.4**	Class	1/C	C 220
Practice	**5.8**		**5.8**	Indiv	1/C	C 220
EC	**2**		2			
EC Review	**0.5**		0.5	Indiv	1/C	C 220
TOTAL TIME	**16**	0.0	**16**	**Time in "day' column" = Ch 2 Anx A Crse length**		

6. TRAINING AIDS:

a. LCD projector; and

b. Whiteboard

7. LEARNING AIDS:

Hand outs

8. TEST DETAILS:

a. type: written;

b. loc.: C 220;

c. % pass : P/F (Min 70% required for pass); and

d. reqts: nil.

9. REMARKS:

a. Special Instructions: nil.

b. Administrative Requirements:

(1) PP&S: Formula sheet;

(2) material: nil;

(3) tools: calculator (16);

(4) equipment: nil;

(5) trg areas: nil;

(6) transport: nil; and

(7) rations: nil.

Enclosure 10 – A401.08, Physics, WFE Tech Apprentice

EO 401.08

1. **Performance.** Solve Trade Related Physics Problems

2. Conditions

   a. Given:

      (1) Supervision;

      (2) Assistance; and

      (3) References;

   b. Denied: nil ; and

   c. Environment: Day or night; static or deployed; and any weather.

3. **Standard**. With directives the apprentice shall apply trade related physics by:

   a. Solving problems relating to density;

   b. Solving problems relating to pressure;

   c. Solving problems relating to power; and

   d. Solving problems relating to heat.

4. **Lesson Objective/Teaching Points/References/ Methods/Time**

OCOM 401.08

1. **Rendement**.

2. Conditions

   a. **Éléments fournis:**

      (1)

      (2)

      (3)

   b. **Éléments non fournis :**

   c. **Environnement :**

3. **Norme**.

   a.

   b.

   c.

   d.

4.

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
a. Solve problems relating to density, expanding on:	C37, C38, C39, C40, & C41.	50		350	a.	
(1) density;					(1)	
(2) relative density;					(2)	
(3) hydrometer;					(3)	
(4) forces: and					(4)	
(5) acceleration.					(5)	
b. Solve problems relating to pressures,	C37, C38, C39,	50		300	b.	

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
expanding on:	C40, & C41.					
(1) Pressure;					(1)	
(2) Pressure in liquid;					(2)	
(3) Pascal's law;					(3)	
(4) Hydraulic pressure;					(4)	
(5) Pressure in gases;					(5)	
(6) Boyle's law;					(6)	
(7) Atmospheric pressure; and					(7)	
(8) Gauge pressure to absolute.					(8)	
c. Solve problems relating to power and heat, expanding on:	C42	50		300	c.	
(1) Work;					(1)	
(2) Power;					(2)	
(3) Energy;					(3)	
(4) Heat;					(4)	
(5) Temperature;					(5)	
(6) Sensing devices;					(6)	
(7) Expansion of solids and liquids;					(7)	
(8) Expansion of gases;					(8)	
(9) Law of partial pressure;					(9)	
(10) Vapour pressure;					(10)	
(11) Heat quantity;					(11)	
(12) Latent heat, specific heat; and					(12)	
(13) Heat transfer to include:					(13)	
(a) Conduction;					(a)	
(b) Convection; and					(b)	
(c) Radiation.					(c)	

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
SUB-TOTAL TIMINGS		**150**		**1050**		
TOTAL TIMINGS		**1200**				

5. **Substantiation**. Participative lecture is the most effective method of introducing new material while encouraging training involvement. Demonstration allows the trainees to visualize the concept covered and put them into a conceptual framework. Practical exercises allow the trainee to practice new skills under supervision.

5. **Justification**.

6. **Training Aids**

   a. White board.

   b. Audiovisual suite and computer; and

   c. VCR/projector;

6. **Matériel d'instruction**

   a.

   b.

   c.

7. **Learning Aids.**

   a. Hand outs/précis;

   b. Physics PIP;

   c. References (C43); and

   d. Calculators will be supplied by the Tech Section.

7. **Matériel d'apprentissage**.

   a.

   b.

   c.

   d.

8. **Test details.** Summative Test

   a. Written (2 pds);

   b. Administration of test will be done by the instructor in conjunction with the Stds Rep and/or Course NCO; and

   c. References – denied.

8.

   a.

   b.

   c.

9. **Remarks**: This EO will be contracted out with a civilian instructor with a set time frame, to prepare the apprentices in physics relative problems, to achieve a standard of 70% on a written exam. The instructor will tailor the package to the specific trade related physics required.

9. **Remarque :** Aucune.

Enclosure 11 – A401.06, Physics, RM Tech Apprentice

EO 401.06

1. **Performance.** Solve Common Physics Problems
2. Conditions
   a. Given:
      (1) Supervision;
      (2) Assistance; and
      (3) References;
   b. Denied: nil ; and
   c. Environment: Day or night; static or deployed; and any weather.
3. **Standard**. With directives the apprentice shall apply trade related physics by:
   a. Solving problems relating to density;
   b. Solving problems relating to pressure;
   c. Solving problems relating to power; and
   d. Solving problems relating to heat.
4. **Lesson Objective/Teaching Points/References/ Methods/Time**

OCOM 401.06

1. **Rendement**.
2. Conditions
   a. **Éléments fournis:**
      (1)
      (2)
      (3)
   b. **Éléments non fournis :**
   c. **Environnement :**
3. **Norme**.
   a.
   b.
   c.
   d.
4.

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
a. Solve problems relating to density, expanding on:	C20	50		350	a.	
(1) density;					(1)	
(2) relative density;					(2)	
(3) hydrometer;					(3)	
(4) forces: and					(4)	
(5) acceleration.					(5)	
b. Solve problems relating to pressures, expanding on:	C20	50		300	b.	
(1) Pressure;					(1)	
(2) Pressure in liquid;					(2)	
(3) Pascal's law;					(3)	
(4) Hydraulic pressure;					(4)	
(5) Pressure in gases;					(5)	
(6) Boyle's law;					(6)	
(7) Atmospheric pressure; and					(7)	
(8) Gauge pressure to absolute.					(8)	

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
c. Solve problems relating to power and heat, expanding on:	C20	50		300	c.	
(1) Work;					(1)	
(2) Power;					(2)	
(3) Energy;					(3)	
(4) Heat;					(4)	
(5) Temperature;					(5)	
(6) Sensing devices;					(6)	
(7) Expansion of solids and liquids;					(7)	
(8) Expansion of gases;					(8)	
(9) Law of partial pressure;					(9)	
(10) Vapour pressure;					(10)	
(11) Heat quantity;					(11)	
(12) Latent heat, specific heat; and					(12)	
(13) Heat transfer to include:					(13)	
(a) Conduction;					(a)	
(b) Convection; and					(b)	
(c) Radiation.					(c)	
SUB-TOTAL TIMINGS		**150**		**1050**		
TOTAL TIMINGS		**1200**				

5. **Substantiation**. Participative lecture is the most effective method of introducing new material while encouraging training involvement. Demonstration allows the trainees to visualize the concept covered and put them into a conceptual framework. Practical exercises allow the trainee to practice new skills under supervision.

5. **Justification**.

6. **Training Aids**

a. White board.

b. Audiovisual suite and computer; and

c. VCR/projector;

6. **Matériel d'instruction**

a.

b.

c.

7. **Learning Aids.**

a. Hand outs/précis;

b. Physics PIP;

c. References; and

d. Calculators will be supplied by the Tech Section.

7. **Matériel d'apprentissage**.

a.

b.

c.

d.

8. **Test details:**

a. Summative Test: See Chapter 3 for details.

b. Formative Test: End of lesson

8.

a.

b.

confirmation by instructor.

9. **Remarks**:

   a. This EO can be contracted out to a civilian instructor with a set time frame, to prepare the apprentices in physics relative problems, to achieve a standard of 70% on a written exam.

   b. This EO is only required for Trades 00301, 00302, 00303, 00304 and 00305.

9. **Remarque :** Aucune.

10.

11.

Enclosure 12 – J611.01, Physics, PH Tech Journeyman

COURSE TITLE: PLUMBING AND HEATING TECHNICIAN - JOURNEYMAN LEVEL

EO NUMBER: J611.01

LATEST AMENDMENT/DATE: AL#

INSTRUCTIONAL CELL: CONTRACTOR

---

1. PERFORMANCE: Solve Trade Related Physics Problems

2. CONDITIONS:

a given:
- (1) references;
- (2) formulas;
- (3) calculators
- (4) assistance (as required) ; and
- (5) tasking.

a. environment:
- (1) all environments; and
- (2) day or night

b. denied: nil

3. STANDARD: IAW specified references the Journeyman shall:

a. solve problems relating to density;

b. solve problems relating to pressure; and

c. solve problems relating to power and heat.

4. TEACHING POINTS TIMINGS AND METHOD OF INSTRUCTION: Timings and method of instruction for the teaching points of this EO are broken down as follows:

SER	TEACHING POINTS	L	D	P	REFERENCES
.01	Solve problems relating to density, expanding on: a. density; b. relative density; c. hydrometer; d. force; and e. acceleration.	50	0	350	A609,C620,C621, C815,D061
.02	Solve problems relating to pressures, expanding on: a. pressure; b. pressure in liquid; c. Pascal's law; d. Hydraulic pressure; e. Pressure in gases; f. Boyle's law; g. Atmospheric pressure; and h. Gauge pressure to absolute.	50	0	350	

SER	TEACHING POINTS	L	D	P	REFERENCES
.03	Solve problems relating to power and heat, expanding on: a. work; b. power; c. energy; d. heat; e. temperature; f. sensing devices; g. expansion of solids and liquids; h. expansion of gases; i. law of partial pressure; j. vapour pressure; k. heat quantity; l. latent heat, specific heat; and m. heat transfer to include: (1) conduction, (2) convection; and (3) radiation	50	0	350	THERMODYNAMICS CFSME Precis
	EC	0	0	100	
	Total Time in Minutes	**150**	**0**	**1150**	**1300**

TOTAL (Day time periods) *Must be same as total day time in para 5	**26.0**

5. METHOD/TIME OF APPROACH:

METHOD	TIME IN PERIODS			Grouping	I/S Ratio	Location
	Day	Night	Totals			
Lecture	**3.0**		**3.0**			
Demo	**0.0**		**0.0**			
Practice	**21.0**		**21.0**			
Home work	**0.0**	**8.0**	**8.0**			
EC	**2.0**		**2.0**			
TOTAL TIME	**26.0**	**8.0**	**34.0**	**Time in "day' column" = Ch 2 Anx A Crse length**		

6. TRAINING AIDS:

a. OHP's
b. Physics models;
c. Formulas; and
d. References

7. LEARNING AIDS:

a. Hand outs/precis;
b. Physics PIP;
c. References;
   (a) A609-Teachers guide to Steins Mathematics & Answer Key 14-146(7);
   (b) C620- Mathematics for Plumbers & Pipefitters;
   (c) C621- Mathematics For The Shop (Nelson/Moore/Hamburger/Becker Publishers);
   (d) C815- Physics Trade Study Manual Precis (CFSME);
   (e) D061- Steins Refresher Mathematics; and
   (f) Precis - Thermodynamics (CFSME)
d. Calculators will be supplied by the PH Tech Section

8. **TEST DETAILS**:

a. Type: written (2 pds);
b. Location: C219
c. % pass: 70%
d. Reqts:
   (1) Administration of test will be done by the PH Tech Sect. in conjunction with the Stds Rep;
   (2) References – denied;
   (3) PO/EO J611.01 only will be evaluated on this test;
   (4) This test is part one of four of PO J611
   (5) Action on completion of test:
      (a) Instructor and PH Tech Standards Rep to review test results;
      (b) Marks will not be disclosed or recorded until review by the PH Stds Rep; and
      (c) PH Tech Stds Rep to record test results.

9. **REMARKS:**

a. Special Instructions
   (1) This EO should be instructed prior to any hard trade EO's.

b. Administrative Requirements:
   (1) Material;
   (2) Tools:
   (3) Equipment:
   (4) Training areas:
   (5) Transportation:
   (6) Training areas:

Enclosure 13 – A401.07, Chemistry, WFE Tech Apprentice

EO 401.07

1. **Performance.** Solve Trade Related chemistry Problems

2. **Conditions**

   a. **Given:**

      (1) Supervision;

      (2) Assistance; and

      (3) References;

   b. **Denied:** nil ; and

   c. **Environment:** Day or night; static or deployed; and any weather.

3. **Standard.** With directives the apprentice shall apply trade related chemistry by:

   a. Describe the structure of matter;

   b. Describe the classification of matter;

   c. Solve valence, chemical formulas and equations;

   d. Describe solutions; and

   e. Describe acids, bases and salts.

4. **Lesson Objective/Teaching Points/References/ Methods/Time**

OCOM 401.07

1. **Rendement.**

2. **Conditions**

   a. **Éléments fournis:**

      (1)

      (2)

      (3)

   b. **Éléments non fournis :**

   c. **Environnement :**

3. **Norme.**

   a.

   b.

   c.

   d.

   e.

4.

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
a. The structure of matter;		**25**			a.	
b. Classification of matter;		25			b.	
c. Valence, chemical formulas and equations;		50	100	400	c.	
d. Solutions; and		50	50	50	d.	
e. Acids, bases and salts.		50	50	50	e.	
SUB-TOTAL TIMINGS		**200**	**200**	**500**		

LESSON OBJECTIVE/ TEACHING POINT(S)	REFERENCES/ REMARKS	METHODS/ MÉTHODES			BUT DE LA LEÇON POINTS D'ENSEIGNEMENT	RÉFÉRENCES/ REMARQUES
		L	D	P		
TOTAL TIMINGS		**900**				

5. **Substantiation**. Participative lecture is the most effective method of introducing new material while encouraging training involvement. Demonstration allows the trainees to visualize the concept covered and put them into a conceptual framework. Practical exercises allow the trainee to practice new skills under supervision.

5. **Justification**.

6. **Training Aids**

   a. White board.

   b. Audiovisual suite and computer; and

   c. VCR/projector;

6. **Matériel d'instruction**

   a.

   b.

   c.

7. **Learning Aids.**

   a. Homework;

   b. Calculators will be supplied by the Training Cell.

7. **Matériel d'apprentissage**.

   a.

   b.

8. **Test details.** Summative Test

8.

9. **Remarks**: This EO will be contracted out with a civilian instructor with a set time frame, to prepare the apprentices in chemistry relative problems, to achieve a standard of 70% on a written exam. The instructor will tailor the package to the specific trade related chemistry required.

9. **Remarque :** Aucune.

Enclosure 14 - Sample DTT

Course:		**DP 1 Const Tech Session 0044**					Cell Supervisor:		SGT MORISOT
Instructional Cell :		**Const Cell**			**FREE**		Standards Rep:		WO BROWN
Dates:		**10 Sep 2013 to 30 May 2014**			**ADMIN**		TC:		?
Ammendments # :					**EC, PC**		Cell OPI:		
DTT # 1 (25/02/13)					**Inspection**		Course Officer:		LT PEDDLE
					No Trg Day		Course NCO:		SGT CARR

All PO/EO's shall be designated as (D) Demo, (DP) Dry Practice, (T) Tour, (F) Film, (GL) Guest Lecture, (L) Lecture, (LP) Live Practice, (P) Practical, (PC) Performance Check, (EC) Enabling Check, (TT) Travel Time, (DI) Questionnaire, (TEWT) Training Exercise Without Troops, (FTX) Field Training Exercise, (R) Review.

DATE/DAY	TIME	PO/EO	SUBJECT	# PRD	INSTRUCTORS	LOCATION	VEH REQR	PT REQR	REMARKS/ADMIN
10/Sep/13	0800-0910		OC/SSM Brief			CAA			Need to book
Tuesday	0910-1000		Crse NCO Brief			C223			
	1000-1015		BREAK						
	1000-1100		Administration Brief			C223			Need to book
	1100-1200		In Clearance			C223			
	1200-1300		LUNCH						
	1255-1345		Standards Brief			C223			Need to book
	1345-1435		Locker Issue/Library book issue			C223			Need to book
	1435-1450		BREAK						
	1450-1540		In Clearance			C223			
	1540-1630		Crse NCO Interview/ Environmental Brief			C223			Video
	0630-0730		Inspection						DEU 1A Crse NCO-Need to book all
11/Sep/13	0730-0820		Shower/Meals						
Wednesday	0820-0910		Padre		Padre	C223			Need to book Padre
Day 1	0910-1000		Weapon Draw			SQMS			Need to book (Cpl Macdonald?)
	1000-1015		BREAK						
	1015-1105		Tool Issue			C137			Need to book (Cpl Macdonald?)
	1105-1155		Harrassment Brief			C223			Need to book (Capt Zelward?)
	1155-1255		LUNCH						
	1255-1345	401.06	CME Orientation Intro	1	MWO	C223			Need to book B Flt WO
	1345-1435	401.07	CME Branch History & Traditions	1	Capt	C223			Need to book B Flt Comd
	1435-1450		BREAK						
	1450-1540	408.01	Trade Related Safety	1		C223			Part 1
	1540-1630	408.01	Trade Related Safety	2		C223			Part 1
	0630-0730		PT						
12/Sep/13	0730-0820		Shower/Meals						
Thursday	0820-0910	408.01	Trade Related Safety	3		C223			Part 2
Day 2	0910-1000	408.01	Trade Related Safety	4		C223			Part 2
	1000-1015		BREAK						
	1015-1105	408.01	Trade Related Safety	5		C223			Part 2
	1105-1155	408.01	Trade Related Safety	6		C223			Part 2
	1155-1255		LUNCH						
	1255-1345	408.01	Trade Related Safety	7		C223			Part 2
	1345-1435	408.01	Trade Related Safety	8		C223			Part 2
	1435-1450		BREAK						
	1450-1540	401.05	Apply Trade Related Mathematics	1		C223			
	1540-1630	401.05	Apply Trade Related Mathematics	2		C223			

Enclosure 14 - Sample DTT

	0630-0730		**Terry Fox Run**						**Students Participate??**
13/Sep/13	0730-0820		**Terry Fox Run**						**Students Participate??**
Friday	0820-0910		**Terry Fox Run**						**Students Participate??**
	0910-1000		**Terry Fox Run**						**Students Participate??**
	1000-1015		**Terry Fox Run**						**Students Participate??**
	1015-1105		**Terry Fox Run**						**Students Participate??**
	1105-1155		**Terry Fox Run**						**Students Participate??**
	1155-1255		**Terry Fox Run**						**Students Participate??**
	1255-1345		**Terry Fox Run**						**Students Participate??**
	1345-1435		**Terry Fox Run**						**Students Participate??**
	1435-1450		**Terry Fox Run**						**Students Participate??**
	1450-1540		**Terry Fox Run**						**Students Participate??**
	1540-1630		**Terry Fox Run**						**Students Participate??**
	0630-0730		**Inspection**						Crse NCO
16/Sep/13	0730-0820		**Shower/Meals**						
Monday	0820-0910	408.01	Trade Related Safety	9		C223			Part 2 Video
Day 3	0910-1000	408.01	Trade Related Safety	10		C223			Part 3
	1000-1015		BREAK						
	1015-1105	401.05	Apply Trade Related Mathematics	3		C223			
	1105-1155	401.05	Apply Trade Related Mathematics	4		C223			
	1155-1255		LUNCH						
	1255-1345	408.01	Trade Related Safety	11		C223			Part 3
	1345-1435	408.01	Trade Related Safety	12		C223			Part 3
	1435-1450		BREAK						
	1450-1540	408.01	Trade Related Safety	13		C223			Part 4
	1540-1630	408.01	Trade Related Safety	14		C223			Part 4 (14 of 37)
	0630-0730		**PT**						
17/Sep/13	0730-0820		**Shower/Meals**						
Tuesday	0820-0910	408.02	Identify Building Components	1		A201			
Day 4	0910-1000	408.02	Identify Building Components	2		A201			
	1000-1015		BREAK						
	1015-1105	408.02	Identify Building Components	3		A201			
	1105-1155	408.02	Identify Building Components	4		A201			
	1155-1255		LUNCH						
	1255-1345	408.02	Identify Building Components	5		A201			
	1345-1435	408.02	Identify Building Components	6		A201			
	1435-1450		BREAK						
	1450-1540	401.05	Apply Trade Related Mathematics	5		C223			
	1540-1630	401.05	Apply Trade Related Mathematics	6		C223			

Enclosure 14 - Sample DTT

	0630-0730		**Inspection**						Crse NCO
18/Sep/13	0730-0820		**Shower/Meals**						
Wednesday	0820-0910	408.02	Identify Building Components	7		A201			
Day 5	0910-1000	408.02	Identify Building Components	8		A201			
	1000-1015		BREAK						
	1015-1105	408.02	Identify Building Components	9		A201			
	1105-1155	408.02	Identify Building Components	10		A201			
	1155-1255		LUNCH						
	1255-1345	408.02	Identify Building Components	11		A201			
	1345-1435	408.02	Identify Building Components	12		A201			
	1435-1450		BREAK						
	1450-1540	401.05	Apply Trade Related Mathematics	7		C223			
	1540-1630	401.05	Apply Trade Related Mathematics	8		C223			
	0630-0730		**PT**						
19/Sep/13	0730-0820		**Shower/Meals**						
Thursday	0820-0910	408.02	Identify Building Components	13		A201			
Day 6	0910-1000	408.02	Identify Building Components	14		A201			
	1000-1015		BREAK						
	1015-1105	408.02	Identify Building Components	15		A201			
	1105-1155	408.02	Identify Building Components	16		A201			
	1155-1255		**LUNCH**						
	1255-1345	408.02	Identify Building Components	17		A201			
	1345-1435	408.02	Identify Building Components	18		A201			
	1435-1450		BREAK						
	1450-1540	401.05	Apply Trade Related Mathematics	9		C223			
	1540-1630	401.05	Apply Trade Related Mathematics	10		C223			
	0630-0730		**PT**						
20/Sep/13	0730-0820		**Shower/Meals**						
Friday	0820-0910	408.02	Identify Building Components	19		A201			
Day 7	0910-1000	408.02	Identify Building Components	20		A201			
	1000-1015		BREAK						
	1015-1105	408.02	Identify Building Components	21		A201			
	1105-1155	408.02	Identify Building Components	22		A201			
	1155-1255		**LUNCH**						
	1255-1345	408.02	Identify Building Components	23		A201			
	1345-1435	408.02	Identify Building Components	24		A201			
	1435-1450		BREAK						
	1450-1540	401.05	Apply Trade Related Mathematics	11		C223			
	1540-1630	401.05	Apply Trade Related Mathematics	12		C223			

Enclosure 14 - Sample DTT

	0630-0730		**Inspection**						Const Cell Comd & Crse NCO
23/Sep/13	0730-0820		**Shower/Meals**						
Monday	0820-0910	408.02	Identify Building Components	25		A201			
Day 8	0910-1000	408.02	Identify Building Components	26		A201			
	1000-1015		BREAK						
	1015-1105	408.02	Identify Building Components	27		A201			
	1105-1155	408.02	Identify Building Components	28		A201			
	1155-1255		**LUNCH**						
	1255-1345	408.02	Identify Building Components	29		A201			
	1345-1435	408.02	Identify Building Components	30		A201			
	1435-1450		BREAK						
	1450-1540	401.05	Apply Trade Related Mathematics	13		C223			
	1540-1630	401.05	Apply Trade Related Mathematics	14		C223			
	0630-0730		**PT**						
24/Sep/13	0730-0820		**Shower/Meals**						
Tuesday	0820-0910	408.02	Identify Building Components	31		A201			31 Periods
Day 9	0910-1000	402.02	Use Manual Drafting Equipment	1		A201			
	1000-1015		BREAK						
	1015-1105	402.02	Use Manual Drafting Equipment	2		A201			**2 Periods**
	1105-1155	402.01	Interpret Sketches and Drawings	1		A201			
	1155-1255		**LUNCH**						
	1255-1345	408.01	Trade Related Safety	15		C223			Part 5
	1345-1435	408.01	Trade Related Safety	16		C223			Part 5
	1435-1450		BREAK						
	1450-1540	401.05	Apply Trade Related Mathematics	15		C223			**Mid way Test**
	1540-1630	401.05	Apply Trade Related Mathematics	16		C223			
	0630-0730		**Inspection**						Crse NCO
25/Sep/13	0730-0820		**Shower/Meals**						
Wednesday	0820-0910	408.02	Identify Building Components	32		A201			
Day 10	0910-1000	408.02	Identify Building Components	33		A201			**33 Periods**
	1000-1015		BREAK						
	1015-1105	401.05	Apply Trade Related Mathematics	17		C223			
	1105-1155	401.05	Apply Trade Related Mathematics	18		C223			
	1155-1255		**LUNCH**						
	1255-1345	408.01	Trade Related Safety	17		C223			**Floor**
	1345-1435	408.01	Trade Related Safety	18		C223			**Floor**
	1435-1450		BREAK						
	1450-1540	408.01	Trade Related Safety	19		C223			**Floor**
	1540-1630	408.01	Trade Related Safety	20		C223			**Floor**

Enclosure 14 - Sample DTT

	0630-0730		**PT**						
26/Sep/13	0730-0820		**Shower/Meals**						
Thursday	**0820-0910**	402.01	Interpret Sketches and Drawings	2		A201			
Day 11	**0910-1000**	402.01	Interpret Sketches and Drawings	3		A201			
	1000-1015		BREAK						
	1015-1105	402.01	Interpret Sketches and Drawings	4		A201			
	1105-1155	402.01	Interpret Sketches and Drawings	5		A201			
	1155-1255		**LUNCH**						
	1255-1345	402.01	Interpret Sketches and Drawings	6		A201			
	1345-1435	402.01	Interpret Sketches and Drawings	7		A201			
	1435-1450		BREAK						
	1450-1540	401.05	Apply Trade Related Mathematics	19		C223			
	1540-1630	401.05	Apply Trade Related Mathematics	20		C223			
	0630-0730		**PT**						
27/Sep/13	0730-0820		**Shower/Meals**						
Friday	**0820-0910**	402.01	Interpret Sketches and Drawings	8		A201			
Day 12	**0910-1000**	402.01	Interpret Sketches and Drawings	9		A201			
	1000-1015		BREAK						
	1015-1105	402.01	Interpret Sketches and Drawings	10		A201			
	1105-1155	402.01	Interpret Sketches and Drawings	11		A201			
	1155-1255		LUNCH						
	1255-1345	402.01	Interpret Sketches and Drawings	12		A201			
	1345-1435	402.01	Interpret Sketches and Drawings	13		A201			
	1435-1450		BREAK						
	1450-1540	401.05	Apply Trade Related Mathematics	21		C223			
	1540-1630	401.05	Apply Trade Related Mathematics	22		C223			
	0630-0730		**Inspection**						B Flt Comd/B Flt WO
30/Sep/13	0730-0820		**Shower/Meals**						
Monday	**0820-0910**	402.01	Interpret Sketches and Drawings	14		A201			**14 Periods**
Day 13	**0910-1000**	408.01	Trade Related Safety	21		C223			**Floor**
	1000-1015		BREAK						
	1015-1105	408.01	Trade Related Safety	22		C223			**Floor**
	1105-1155	408.01	Trade Related Safety	23		C223			**Floor**
	1155-1255		LUNCH						
	1255-1345	408.01	Trade Related Safety	24		C223			**Floor**
	1345-1435	408.01	Trade Related Safety	25		C223			Fall Arrest
	1435-1450		BREAK						
	1450-1540	401.05	Apply Trade Related Mathematics	23		C223			
	1540-1630	401.05	Apply Trade Related Mathematics	24		C223			

Enclosure 14 - Sample DTT

	0630-0730		**PT**						
1/Oct/13	0730-0820		**Shower/Meals**						
Tuesday	0820-0910	402.03	Produce Basic Pictorial Sketches	1		A201			
Day 14	0910-1000	402.03	Produce Basic Pictorial Sketches	2		A201			
	1000-1015		BREAK						
	1015-1105	402.03	Produce Basic Pictorial Sketches	3		A201			
	1105-1155	402.03	Produce Basic Pictorial Sketches	4		A201			
	1155-1255		LUNCH						
	1255-1345	401.05	Apply Trade Related Mathematics	25		C223			
	1345-1435	401.05	Apply Trade Related Mathematics	26		C223			
	1435-1450		BREAK						
	1450-1540	401.05	Apply Trade Related Mathematics	27		C223			
	1540-1630	401.05	Apply Trade Related Mathematics	28		C223			
	0630-0730		**Inspection**						Crse NCO
2/Oct/13	0730-0820		**Shower/Meals**						
Wednesday	**0820-0910**	402.03	Produce Basic Pictorial Sketches	5		A201			
Day 15	**0910-1000**	402.03	Produce Basic Pictorial Sketches	6		A201			
	1000-1015		BREAK						
	1015-1105	402.03	Produce Basic Pictorial Sketches	7		A201			
	1105-1155	402.03	Produce Basic Pictorial Sketches	8		A201			
	1155-1255		LUNCH						
	1255-1345	402.03	Produce Basic Pictorial Sketches	9		A201			
	1345-1435	402.03	Produce Basic Pictorial Sketches	10		A201			
	1435-1450		BREAK						
	1450-1540	402.03	Produce Basic Pictorial Sketches	11		A201			
	1540-1630	402.03	Produce Basic Pictorial Sketches	12		A201			
	0630-0730		**PT**						
3/Oct/13	0730-0820		**Shower/Meals**						
Thursday	0820-0910	402.03	Produce Basic Pictorial Sketches	13		A201			
Day 16	0910-1000	402.03	Produce Basic Pictorial Sketches	14		A201			
	1000-1015		BREAK						
	1015-1105	402.03	Produce Basic Pictorial Sketches	15		A201			
	1105-1155	402.03	Produce Basic Pictorial Sketches	16		A201			**16 Periods**
	1155-1255		LUNCH						
	1255-1345	408.01	Trade Related Safety	26		C223			Fall Arrest
	1345-1435	408.01	Trade Related Safety	27		C223			Fall Arrest
	1435-1450		BREAK						
	1450-1540	408.01	Trade Related Safety	28		C223			Fall Arrest
	1540-1630	408.01	Trade Related Safety	29		C223			Fall Arrest

Enclosure 14 - Sample DTT

	0630-0730		**Inspection**						OC/SSM
4/Oct/13	0730-0820		**Shower/Meals**						
Friday	0820-0910	408.01	Trade Related Safety	30		C223			Fall Arrest
Day 17	0910-1000	408.01	Trade Related Safety	31		C223			Fall Arrest
	1000-1015		BREAK						
	1015-1105	408.01	Trade Related Safety	32		C223			Fall Arrest
	1105-1155	408.01	Trade Related Safety	33		C223			Fall Arrest
	1155-1255		LUNCH						
	1255-1345	408.01	Trade Related Safety	34		C223			Review
	1345-1435	408.01	Trade Related Safety	35		C223			Review
	1435-1450		BREAK						
	1450-1540	408.01	Trade Related Safety	36		C223			Review
	1540-1630	405.01	Perform Basic Survey	1					Need to book D&S
	0630-0730		**Inspection**						Crse NCO
7/Oct/13	0730-0820		**Shower/Meals**						
Monday	0820-0910	405.01	Perform Basic Survey	2					
Day 18	0910-1000	405.01	Perform Basic Survey	3					
	1000-1015		BREAK						
	1015-1105	405.01	Perform Basic Survey	4					
	1105-1155	405.01	Perform Basic Survey	5					
	1155-1255		LUNCH						
	1255-1345	401.05	Apply Trade Related Mathematics	29		C137			
	1345-1435	401.05	Apply Trade Related Mathematics	30		C137			
	1435-1450		BREAK						
	1450-1540	401.05	Apply Trade Related Mathematics	31		C137			
	1540-1630	408.01	Trade Related Safety	37		C223			**37 Periods (Written PC)**
	0630-0730		**PT**						
8/Oct/13	0730-0820		**Shower/Meals**						
Tuesday	0820-0910	405.01	Perform Basic Survey	6					
Day 19	0910-1000	405.01	Perform Basic Survey	7					
	1000-1015		BREAK						
	1015-1105	405.01	Perform Basic Survey	8					
	1105-1155	405.01	Perform Basic Survey	9					
	1155-1255		LUNCH						
	1255-1345	405.01	Perform Basic Survey	10					
	1345-1435	401.05	Apply Trade Related Mathematics	32		C137			
	1435-1450		BREAK						
	1450-1540	401.05	Apply Trade Related Mathematics	33		C223			
	1540-1630	401.05	Apply Trade Related Mathematics	34		C223			

Enclosure 14 - Sample DTT

	0630-0730		**PT**						
9/Oct/13	0730-0820		**Shower/Meals**						
Wednesday	**0820-0910**	405.01	Perform Basic Survey	11					
Day 20	**0910-1000**	405.01	Perform Basic Survey	12					
	1000-1015		BREAK						
	1015-1105	405.01	Perform Basic Survey	13					
	1105-1155	405.01	Perform Basic Survey	14					
	1155-1255		LUNCH						
	1255-1345	405.01	Perform Basic Survey	15					
	1345-1435	405.01	Perform Basic Survey	16					
	1435-1450		BREAK						
	1450-1540	401.05	Apply Trade Related Mathematics	35		C223			**Written PC**
	1540-1630	401.05	Apply Trade Related Mathematics	36		C223			**36 Periods (Written PC)**
	0630-0730		**Inspection**						Cmdt/SCWO
10/Oct/13	0730-0820		**Shower/Meals**						
Thursday	0820-0910	405.01	Perform Basic Survey	17					
Day 21	0910-1000	405.01	Perform Basic Survey	18					
	1000-1015		BREAK						
	1015-1105	405.01	Perform Basic Survey	19					
	1105-1155	405.01	Perform Basic Survey	20					
	1155-1255		LUNCH						
	1255-1345	405.02	Conduct a Trade Related Survey	1					
	1345-1435	405.02	Conduct a Trade Related Survey	2					
	1435-1450		BREAK						
	1450-1540	405.02	Conduct a Trade Related Survey	3					
	1540-1630	405.02	Conduct a Trade Related Survey	4					
	0630-0730		**CETS SQN DAY**						**NO TRAINING DAY**
11/Oct/13	0730-0820		**CETS SQN DAY**						**NO TRAINING DAY**
Friday	0820-0910		**CETS SQN DAY**						**NO TRAINING DAY**
	0910-1000		**CETS SQN DAY**						**NO TRAINING DAY**
	1000-1015		**CETS SQN DAY**						**NO TRAINING DAY**
	1015-1105		**CETS SQN DAY**						**NO TRAINING DAY**
	1105-1155		**CETS SQN DAY**						**NO TRAINING DAY**
	1155-1255		**CETS SQN DAY**						**NO TRAINING DAY**
	1255-1345		**CETS SQN DAY**						**NO TRAINING DAY**
	1345-1435		**CETS SQN DAY**						**NO TRAINING DAY**
	1435-1450		**CETS SQN DAY**						**NO TRAINING DAY**
	1450-1540		**CETS SQN DAY**						**NO TRAINING DAY**
	1540-1630		**CETS SQN DAY**						**NO TRAINING DAY**

ED Tech DP1 Math

MASTER LESSON PLAN

Performance objective	PO,	107	Title:	**PO Name**
Enabling objective	EO,	107.01	Title:	**Describe the enabling objective.**

LESSON OBJECTIVE

1. PERFORMANCE

   Prepare the fragmentation grenade for throwing

2. CONDITIONS

   a. **GIVEN** (used by students to meet this lesson's objective)

      (1) Calculators ?????; and

      (2) Work Books.

   b. **DENIED** (cannot be used by students to meet the objective)

      (1) Text

   c. **ENVIRONMENT** (place and context in which students must demonstrate they have met the objective)

      (1) Classroom environment

3. STANDARD (minimal measurable level that students must reach)

   The student will:

   a. Quantity:

   b. Quality: IAW the references, the candidate must be able to manipulate the Pythagorean Theorem to solve angles and values?"???

   c. Time:

4. TEACHING POINTS

Teaching point		Teaching point	
1. Identifying Pythagorean theorem		**2.** Description, characteristics of ????	
Theory:	X	Theory:	
Demonstration:		Demonstration:	X
Teaching point		**Teaching point**	
3. Description, characteristics of ????		**4.** Description, characteristics of ????	
Theory:	x	Theory:	x
Demonstration:		Demonstration:	

5. DURATION

a. Theory portion: 1 x 40 min

b. Demonstration portion:

c. Practice portion:

6. REFERENCE DOCUMENTS

a. Use your reference, provided is an example.

Example. B-GL-385-007/PT-002 Grenades and Pyrotechnics, Chap. 2, art. 18 and table 2-1, ch. 2, lesson 1, art. 10 to 17 and ch. 2, lesson 2 art. 16 to 20

7. TEACHING AIDS (presentation aids for instructor)

a. Table;

b. Pointer;

c. Blackboard or whiteboard with felt pens/chalk;

d. Multimedia projector; and

e. Calculator.

f. Add or remove items as you see fit. This is what the instructor will require to deliver the trg.

8. LEARNING AIDS (reading, study or assignment aids for students)

a. Things the students will have as a learning aid..ie. home work, assigments, lab work, etc….

9. TEST DETAILS

a. End-of-lesson confirmation – practical test

b. PC as per the Teaching Points (TP) provided with SOR

10. REMARKS

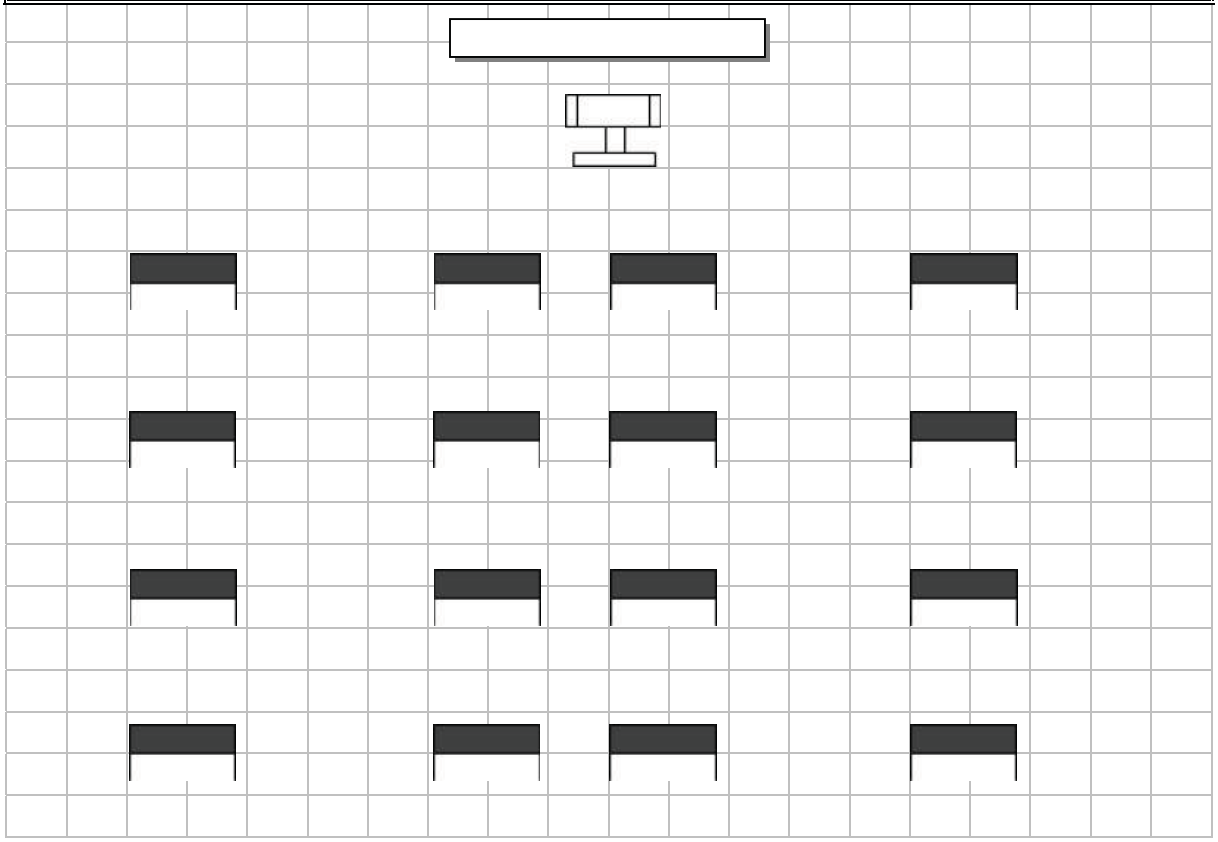
a. The lesson must be given in a controlled classroom environment.

b. Add anything you wish to this list that you would see fit identifying any unknowns

Note: To modify this lesson plan, please refer to Standards.

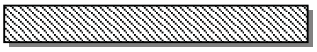
LESSON PRESENTATION TABLE
COURSE: ED Tech DP1 Math (Example) RANK/NAME: Instructors name
EO, 107.01 (this is taken from the TP)
ED TECH DP1 MATH **Learn Pythagorean Theorem (modify to fit lessons)** Teaching points: 1. Introduction of fractions, (example) 2. Introduction of Pythagorean Theorem , (example) 3. Application of Pythagorean Theorem; and (example) 4. Add here what you are teaching by teaching points. (example)
HOUR; REFERENCES: See part 6

CLASSROOM ARRANGEMENT PLAN



Note: To use the items in the legend (1) select the item (2) right click (3) copy and paste (4) position the item in the above plan (5) resize the item if necessary.

LEGEND

			X		
Student and desk	Board	Weapon	Position	Soldier	Instructor
					
Target	Rubber Mat	Table	Bench	Projector	Lectern

Time allocation		Instructor's notes
	MASTER LESSON PLAN	
	I – INTRODUCTION	
	1. SAFETY MEASURES: (if applicable)	
	a. Done by the instructor	
	SAFETY PRECAUTIONS: (if applicable)	
	b. Text	
	2. REVIEW OR APPROACH: (if applicable)	
	None	
	Question #1:	
	Text	
	Answer #1:	
	a. Text	
	3. WHERE, WHAT, WHY:	
	a. **Background**:	
	First lesson on basic math (whatever you first lesson will be)	
	b. **In this lesson, you will learn**:	
	In the next several lessons you will learn how to **??????**	Slide 1 (identify what slide if any this info is on)
	c. **Aim**:	
	As an ED Tech, you will be expected to calculate trade related Math calculations. (put in whatever you want to say)	
	4. SKILLS LESSON**:**	
	Silent demonstration or final product (if time permits)	

Time allocation		Instructor's notes
	5. APPROACH**:** (number of stages and brief description of each) This lesson has 4 stages: **Stage 1:** Introduction of fractions **Stage 2:** Introduction of Pythagorean Theorem , (example) **Stage 3:** Application of Pythagorean Theorem; and (example) **Stage 4:** Anything else you wish to add	
	6. CLASS CONTROL STATEMENT**:** a. "If you have questions, raise your hand." b. "When I ask a question, no class answers, I will designate someone to answer."	
	7. KNOWLEDGE LESSON – TEST STATEMENT**:** a. Type of test, oral or written: b. Type and number of questions: c. Minimum standard to achieve: d. Time allowed:	
	8. SKILLS LESSON – TEST STATEMENT**:** a. Practical test: b. Minimum standard to achieve: c. Time allowed:	
	9. SKILLS LESSON**:** Explanation and practice of training positions and demonstration positions (if necessary). a. Text	

Time allocation		Instructor's notes
	II – BODY	
	Stage 1: INTRODUCTION OF FRACTIONS	Slides 1 to 11
1.	KNOWLEDGE LESSON:	
	Brief description of TP and explanations.	
	We will learn how to use fractions by ????????	
	SKILLS LESSON:	
	Brief introduction of TP.	
2.	PRESENTATION AND DEVELOPMENT OF TP:	
	a. To assist students in adding, subtracting, multiplying and dividing fractions.	
3.	STAGE CONFIRMATION:	Slide 12
	KNOWLEDGE LESSON:	
	During this stage, we have learned **IDENTIFYING THE TYPES OF GRENADES**.	
	a. Questions from the class (Do you have any questions?)	
	b. Questions to the class	
	Question 1	
	Ask questions i.e. what is ½" + ¼"	
	Answer 1	
	Provide answer ¾".	
	c. Practice.	
	SKILLS LESSON:	
	Practical application of teaching point(s). Do more examples	

Stage 2: INTRODUCTION OF PYTHAGOREAN THEOREM

Slide 13

1. KNOWLEDGE LESSON:

Brief description of **Pythagorean Theorem**.

Explain the formulas i.e.

Sin = Opp/Hyp etc…

SKILLS LESSON:

Brief introduction of TP.(How to employ these skills)

2. PRESENTATION AND DEVELOPMENT OF TP:

a. **General**

Example….explain your presentation in accordance with (IAW) the TP. Pythagorean Theorem is designed to calculate line distances or other values using angles of the triangle. This is how you would instruct this topic.

Slide 14

Slide 17

3. STAGE CONFIRMATION:

Ask the class questions, get them up to the board to demonstrate , ask questions and provide answers.

KNOWLEDGE LESSON:

During this stage, we have learned **DESCRIPTION, CHARACTERISTICS AND OPERATION OF FRAGMENTATION GRENADE C13**.

a. Questions from the class (Do you have any questions?)

b. Questions to the class

Question #1:

Text

Answer #1:

a. Text

c. Practice.

SKILLS LESSON:

Practical application of teaching point(s).

Stage 3: INTRODUCTION OF PYTHAGOREAN THEOREM

Slide 13

1. KNOWLEDGE LESSON:

Brief description of **Pythagorean Theorem**.

Explain the formulas i.e.

Sin = Opp/Hyp etc…

SKILLS LESSON:

Brief introduction of TP.(How to employ these skills)

2. PRESENTATION AND DEVELOPMENT OF TP:

b. **General**

Example….explain your presentation in accordance with (IAW) the TP. Pythagorean Theorem is designed to calculate line distances or other values using angles of the triangle. This is how you would instruct this topic.

Slide 14

3. STAGE CONFIRMATION:

Slide 17

Ask the class questions, get them up to the board to demonstrate , ask questions and provide answers.

KNOWLEDGE LESSON:

During this stage, we have learned **DESCRIPTION, CHARACTERISTICS AND OPERATION OF FRAGMENTATION GRENADE C13**.

a. Questions from the class (Do you have any questions?)

b. Questions to the class

Question #1:

Text

Answer #1:

b. Text

c. Practice.

SKILLS LESSON:

Practical application of teaching point(s).

III – Review

1. Restate the what:

In this lesson you have learned the math required which you can apply to your trades……..

2. Conduct a review
   a. Ask confirmation questions,
   b. Do some examples, and
   c. Finally, ask if there are any questions prior to the test.

IV – TEST

1. *KNOWLEDGE LESSON:*

   Confirmation – Written test

   "Turn over your n."

   Questions to class:

   Type and number of questions:

   Minimum standard to achieve:

2. Time allowed:

Directions at the end of test:

a. Do you have any questions?

b. End of written test: