EO M322.02 – CALCULATE MAGNETIC DECLINATION

1. **Performance.** Calculate Magnetic Declination.

2. **Conditions**

   a. Given:

      (1) Topographical map,

      (2) Compass,

      (3) Declination problem worksheet,

      (4) Supervision, and

      (5) Assistance as required.

   b. Denied: N/A.

   c. Environmental: Classroom or training area large enough to accommodate the entire group.

3. **Standard.** IAW B-GL-382-005/PT-001 *Maps, Field Sketching, Compasses and the Global Positioning System*, Chapter 2, Section 3, the cadet shall calculate magnetic declination.

4. **Teaching Points**

TP	Description	Method	Time	Ref
TP1	IAW M222.02 (Describe Bearings, A-CR-CCP-702/PG-001, Chapter 4, Section 12), review magnetic declination and the three norths, to include: a. magnetic declination, b. grid magnetic angle, c. annual magnetic change, d. true north, e. grid north, and f. magnetic north.	Interactive Lecture	5 min	A2-041 (pp. 50–54)

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TP	Description	Method	Time	Ref
TP2	Demonstrate, explain and have the cadet practice calculating magnetic declination, to include: a. locating the declination diagram and information; and b. calculating declination by: (1) identifying the current year; (2) identifying year of declination information; (3) recording the difference in years; (4) determining if the annual change is increasing or decreasing; (5) multiplying the difference in years by the annual change; (6) determining if declination is east or west; (7) adding or subtracting the annual change from the original declination; and (8) setting the calculated declination on a compass.	Demonstration and Performance	20 min	A2-041 (pp. 53–58)
TP3	Have the cadet calculate magnetic declination using east and west declination examples.	In-Class Activity	30 min	

5. **Time**

a.	Introduction/Conclusion:	5 min
b.	Interactive Lecture:	5 min
c.	Demonstration and Performance:	20 min
d.	In-Class Activity:	30 min
e.	Total:	60 min

6. **Substantiation**

a. An interactive lecture was chosen for TP 1 to orient the cadet to calculating magnetic declination and to present basic material.

b. Demonstration and performance was chosen for TP 2 as it allows the instructor to explain and demonstrate calculating magnetic declination while providing an opportunity for the cadets to practice calculating magnetic declination under supervision.

c. An in-class activity was chosen for TP 3 as it is an interactive way to reinforce calculating magnetic declination.

7. **References.** A2-041 B-GL-382-005/PT-001 Canadian Forces. (2006). *Maps, Field Sketching, Compasses and the Global Positioning System*. Ottawa, ON: Department of National Defence.

8. **Training Aids**

a. Topographical map, and

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b. Compass.

9. **Learning Aids**

   a. Topographical map,

   b. Compass, and

   c. Declination problem worksheet.

10. **Test Details.** This EO will be assessed IAW Chapter 3, Annex B, Appendix 6 (322 PC).

11. **Remarks.** Cadets may use a calculator for calculating declination.

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