

GRADUATE NON-DEGREE PROGRAMS

Postgraduate Diploma in Mapping, Charting and Geodesy (2015-2016)

Background and Objective

This graduate diploma program has been designed to meet the requirements of the Mapping and Charting Establishment (M.C.E.) of J2 Geomatics in the Department of National Defence. M.C.E. has an ongoing requirement to provide advanced training in the mapping sciences, surveying, and geodesy for career military officers who have baccalaureate degrees in various engineering and science disciplines but who, with rare exceptions, have not had any courses in geodesy, photogrammetry/remote sensing, or advanced surveying.

The purpose of this program is, in the minimum time, to give these officers, and others in similar circumstances, a good understanding of the principles underlying present and imminent technology in mapping, charting, and geodesy.

Admission Requirements

An appropriate bachelor's degree in engineering or science is required. Candidates will generally meet the standard requirements for admission to graduate school, however, some allowance for experience may be made for those otherwise not admissible. As part of their previous work, applicants should have completed:

- At least four term courses in mathematics, which should have included linear algebra and ordinary differential equations.
- One term course in surveying.
- At least one term course in probability and statistics.
- At least one course, and preferably two courses, in computer science, plus some experience in using computers.

Applicants who are deficient in not more than one of the above topics may be accepted and advised on the prerequisite of courses from Table I to be taken during Terms 1 and 2.

Table 1. List of prerequisite equivalents.	
MATH1503	Introduction to Linear Algebra
MATH2513	Multivariable Calculus for Engineers
STAT 2593	Probability and Statistics for Engineers
CS1013	Computer Science Concepts (C/C++)
CS3113	Numerical Methods

Course Syllabus for Military Officers Undertaking the Graduate Diploma in Mapping, Charting and Geodesy (credit hours in parentheses (54 ch))

Term 1 (Fall, 15 ch)	Term 2 (Winter, 15 ch)
GGE3423 Mapping Concepts & Tech (3)	GGE2012 Advanced Surveying (3)
GGE5342 Remote Sensing or GGE3342 Imaging & Mapping I (3)	GGE3111 Introduction to Adjustment Calculus (3)
FOR 6281 Geographic Information Systems (online) (3)	GGE3202 Geodesy I (3)
	GGE4423 Geographic Information Systems (3)
TME 6213 Quality Management (3) –OR– TME 6313 Managing Engineering & Information Technology Projects (class or on-line) (3) (if student has already successfully completed a university level course in Project Management)	MATH 3543 Differential Geometry for Geomatics Engineers (3)
<i>Also develop experience in PYTHON in their own time</i>	

Permission to transfer to the MEng degree program may be applied for and confirmed with the CO MCE after completing 2 terms of courses. The transfer will take effect on May 1, provided that permission has been granted by CO MCE and that the academic performance of the officer is satisfactory.

Students transferring to the MEng should take the following courses during the summer term:

Summer Term (MEng) 9 ch
FOR 6282 Spatial Analyst Extension in ARCGIS (on line) (3)
GGE 2013 Advanced Survey Practicum (April) (3)
GGE 6921 Directed Research (project) (3) or FOR 6304 Advanced Studies in Radar Polar Imagery (online) (3) (note: FOR 3304 Photo Interpretation for Engineers)

Diploma Stream:	MEng Stream:
1st summer GGE 2013 Advanced Survey Practicum (3)	
Term 3 (Fall, 12 ch)	Term 3 (Fall, 6 ch)
GGE 3122 Advanced Adjustment Calculus (3) GGE 4211 Geodesy II (3) GGE 6405 Geographic Databases (3)	GGE 6405 Geographic Databases (3)
<u>OR</u> FOR 6281 Geographic Information Systems (online) (3)	
6 credit hours of electives (6)	GGE 6922 Directed Research (3)
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Term 4 (Winter, 12 ch)	Term 4 (Winter, 6 ch)
GGE4313 Imaging and Mapping III (3)	GGE 4313 Imaging and Mapping III (3)
ONE of: GGE 6322 Digital Image Analysis (3) -OR-	GGE 6408 Geospatial Web (3) (or another 6000-level elective when this course is unavailable)
GGE 6408 Geospatial Web (3)	GGE 6910 Graduate Seminar (cr)
PLUS 6 credit hours of electives (6)	Total 33 ch
2nd summer	
Posted for employment.	

Performance Levels

As the material in this program is partly at an undergraduate and partly at a graduate level, a compromise in performance requirements has been accepted for the Diploma. The Diploma will be granted to students who achieve a cumulative grade point average of at least 2.5 (midway between C+ and B- with no grades lower than 2.0 (C).

For the MEng degree students must achieve a grade point average of 3.0 (B) with no grade lower than 2.7 (B-).

Transfer to Masters of Engineering Degree from Diploma Program

Permission to transfer to the MEng degree program may be applied for and confirmed with the CO MCE after completing 2 terms of courses. Subject to approval by the Director of Graduate Studies and the student's supervisor, students may transfer into the MEng program provided they have maintained a cumulative average of 3.0 or better. Courses eligible for graduate credit with grades of B- or better may be credited towards the Master's degree requirements.