

**Canadian Institute of Geomatics /
Association canadienne des sciences géomatiques**

Certification Program

For

Geomatics Specialists

1. GENERAL INFORMATION

Geomatics, along with most of the applied science and engineering disciplines, is affected by advancing technologies and innovations in related fields. Surveying engineering evolved into Geomatics engineering. Ever expanding computing power, at a decreasing cost, combined with user friendliness of software and hardware, now permit computer literate personnel to perform tasks which in the past could be performed only by highly trained technicians or professionals. Computer scientists, electronic engineers and many geo-scientists are discovering photogrammetry and geodesy - GPS and are putting their own spin on Geomatics.

These developments have the effect that an increasing number of people is engaged in practising and offering services in some of the other branches of Geomatics that are not covered by acts governing the practice of professional engineering or land surveying, often, regardless of qualifications.

It is felt that voluntary Certification (not licensing) by CIG would provide an official recognition by one's colleagues and peers that an individual has demonstrated professional integrity and competence in his/ her field. It would also give some comfort to the public that the individual performing the work would conduct himself/herself in accordance with high ethical and professional practice standards.

CIG is aware of and supports the Canadian initiative under ISO/TC211 on the international Qualification and Certification of Geomatics Personnel. CIG looks forward to the integration of the CIG Certification program into an international program at such time as the latter becomes operative.

2. CERTIFICATION FIELDS

Because of the wide variety of skills and disciplines comprising Geomatics and practised in this field, the Certification programme is based primarily on evidence of demonstrated professional capability and achievement.

The following fields of specialization are considered suitable for certification under this program:

GEOMATICS SPECIALIST (photogrammetry)
GEOMATICS SPECIALIST (remote sensing)
GEOMATICS SPECIALIST (GIS/LIS)
GEOMATICS SPECIALIST (geodesy)
GEOMATICS SPECIALIST (cartography)
GEOMATICS MANAGER

3. PURPOSE AND OBJECTIVES

A growing number of scientific and technical disciplines depend on Geomatics for reliable measurements and information. It is in the interest of those who provide Geomatics services, as well as the user of these services, that such information and data be accurate and dependable. The CIG Certification Program has as its purpose the establishment and maintenance of high standards of ethical conduct and professional practice among Geomatics practitioners.

The primary objectives of the programs are:

1. To identify and recognize those persons who, after careful, just appraisal by their peers, are considered to have met the requirements established by CIG for certification.
2. To provide a basis for weighing the validity of allegations and complaints that involve persons practising Geomatics, and for taking appropriate action in connection therewith.
3. To encourage persons who are not yet fully qualified to work towards certification as a goal of professional achievement.
4. To encourage certified persons, through the re-certification process, to continue their professional achievements as rapid changes in technology occur.

The CIG Certification Program is voluntary and open to all qualified individuals, who are members of the Canadian Institute of Geomatics.

4. BASIC REQUIREMENTS

CERTIFIED GEOMATICS SPECIALIST (Photogrammetry)

A practitioner specializing in:

- Systems selection and operational planning

- Sensor/platform modelling
- Processing of imagery
- Extraction of data from imagery
- Derivation of information
- Ascertaining quality and accuracy estimates
- Presentation of results

The Specialist is responsible for all phases of mapping and other mensuration requirements, which include planning and supervising survey activities for control, specifying photography or other imagery requirements, managing projects for mapping or other mensuration requirements and interpretation.

Certification Requirements:

1. Six years of professional experience in photogrammetry, during which professional knowledge and competence was demonstrated.
2. References from four persons who are holding, or who have held, responsible positions in photogrammetry and have first-hand knowledge of the applicant's professional and personal qualifications.
3. Membership in the Canadian Institute of Geomatics.
4. Declaration of compliance with the Code of Ethics of CIG.

CERTIFIED GEOMATICS SPECIALIST (Remote Sensing)

A practitioner specializing in:

- Sensors selection and operational planning
- Processing and Interpretation of imagery acquired from aircraft, spacecraft or ground bases
- Derivation of information for specific purposes and disciplines
- Ascertaining quality and accuracy estimates
- Presentation of results

Remotely sensed data is used by various specialized disciplines in the study of natural resources, temporal changes, and for land use planning.

Certification Requirements:

1. Six years of specialized experience at a professional level in remote sensing and interpretation of data from various imaging systems and/or design of remote sensing systems.
2. References from four persons who are holding or who have held responsible positions in remote sensing and have first-hand knowledge of the applicant's professional and personal qualifications.
3. Membership in the Canadian Institute of Geomatics.
4. Declaration of compliance with the Code of Ethics of CIG

CERTIFIED GEOMATICS SPECIALIST (GIS/LIS)

A GIS/LIS practitioner specializing in:

- Database construction and management
- Design and/or integration of application software packages
- Spatial analysis
- Ascertaining quality/accuracy estimates
- Presentation of results
- System maintenance

They are responsible for the integration of data needs and the development of correspondence between and the utilization of various spatial systems of often-different generic origins that are used to solve requirements.

Certification Requirements:

1. Six years of professional experience in the field of GIS Systems or LIS systems, during which professional knowledge and competence in those systems were demonstrated
2. References from four persons who are holding, or who have held, responsible positions in Geomatics and in the Geographic or Land Information Systems area and have first-hand knowledge of the applicant's professional and personal qualifications.
3. Membership in the Canadian Institute of Geomatics.
4. Declaration of compliance with the Code of Ethics of CIG

CERTIFIED GEOMATICS SPECIALIST (Geodesy)

A practitioner specializing in geodetic surveying and applications:

- Selection of geodetic grade GPS systems and operational planning
- Data acquisition and processing

- Ascertaining of quality/accuracy estimates
- Presentation of results

Certification Requirements:

1. Six years of professional experience in Geodesy with emphasis on GPS, during which professional knowledge and competence in those systems were demonstrated.
2. References from four persons who are holding, or who have held, responsible positions in Geomatics and in Geodesy and have first-hand knowledge of the applicant’s professional and personal qualifications.
3. Membership in the Canadian Institute of Geomatics.
4. Declaration of compliance with the Code of Ethics of CIG

CERTIFIED GEOMATICS SPECIALIST (Cartography)

The Canadian Institute of Geomatics (CIG) and the Canadian Cartographic Association (CCA) recognize the following areas of cartographic specialization:

- Collection, selection and classification of data for mapping
- Compilation, design and production of hard-copy and interactive map displays
- Research into aspects of cartography (e.g., perception, visualization, history)
- Setting cartographic specifications, quality control, ascertaining accuracy estimates

Certification Requirements:

1. Six years of professional experience in cartography, during which professional knowledge and competence was demonstrated.
2. References from four persons who are holding, or who have held, responsible positions in Geomatics and have first-hand knowledge of the applicant’s professional and personal qualifications.
3. Membership in the Canadian Institute of Geomatics and/or the Canadian Cartographic Association.
4. Declaration of compliance with the Code of Ethics of the Canadian Institute of Geomatics.

CERTIFIED GEOMATICS MANAGER

A practitioner who has a broad knowledge of the Geomatics field and is engaged in:

- Management of a multi disciplinary Geomatics team
- Operational planning of projects involving several Geomatics specialities
- Quality assurance
- Presentation of results

Certification Requirements:

1. Six years of professional experience in senior management positions in the Geomatics sector during which professional knowledge, integrity and competence were demonstrated.
2. References from four persons who are holding, or who have held, senior management positions in Geomatics and references from two major clients.
3. Membership in the Canadian Institute of Geomatics.
4. Declaration of compliance with the Code of Ethics of CIG.

5. EDUCATIONAL CREDITS

When computing the number of years of experience under basic requirements, credit may be given in lieu of actual job experience for technology diplomas or degrees, based on the length of the program. The diplomas or degrees may be in geomatics, engineering, geography or in other related natural or physical sciences from CIG recognized institutions. Credit may be granted on the following basis:

<u>Type of Credential</u>	<u>Maximum Years of Credit</u>
Technology Diploma	2.5
Bachelor’s Degree	3
Master’s Degree	3.5
Doctorate	4

(Credits are not accumulative)

6. SEALS AND CERTIFICATES

The Canadian Institute of Geomatics will issue a certificate and an appropriate seal, or seals, to every Certified Geomatics Specialist. The seal remains the property of CIG and must be returned upon demand. Those certified by the Institute may display the certificate and use the corresponding designation on business stationery and cards.

7. RECERTIFICATION REQUIREMENTS

Anyone who has been certified by CIG can maintain that certification unless there is cause to remove the certification for malpractice or violation of the CODE OF ETHICS of CIG. To ensure that a certified person has maintained or improved the skill and knowledge that enabled them to become certified, CIG is developing a Recertification Program. Certified persons will require recertification every five years.

Recertification applicants are required to fill out the Recertification application to show the type of activity that they have practised and their professional involvement in Geomatics. They must also provide the names of four references who have knowledge of the applicant's professional and personal involvement in the last five years. Each applicant must earn twenty-five points based on the Recertification Criteria.

8. RECERTIFICATION CRITERIA

Recertification evaluation is partially based on an accumulation of points earned during the period certified. The level of points required will be reviewed from time to time by the Certification Committee.

<u>Possible Points</u>	<u>Evaluation Criterion</u>
up to 20	Applicant has been active in providing services in the area to be recertified, or has been in the academic area involved directly with those subjects.
up to 8	Applicant has participated in panels, presented or published technical papers.
up to 8	Applicant has attended and taken workshops or classes in related subjects, or has obtained additional related formal education.
up to 4	Applicant has attended technical conferences sponsored by CIG, CCA, CHA, Provincial Survey Associations, ACLS, ASPRS, ACSM, URISA, ISPRS, FIG and other appropriate professional meetings.

The application must be specific so the Certification Committee can properly evaluate an applicant's activities. The application and the references are the only criteria needed for recertification. (Applicant could be asked by the Committee to submit to an interview.)

9. INACTIVE/RETIRED CERTIFIED GEOMATICS SPECIALIST

Those Certified Geomatics Specialists who do not become Recertified will be automatically placed in either an Inactive or Retired status. Individuals in either category must return their seals to CIG and must not otherwise indicate that they are Active Certified Geomatics Specialists. Lists of individuals in each category will be available from the Institute.

10. FEES

The fee for initial certification is \$150, consisting of a \$100 non-refundable application processing fee and a \$50 certification fee. The certification fee will be refunded should the application for certification not be successful. The fees for re-certification will be established once the program is in operation but are expected to be nominal.

11. ADMINISTRATIVE PROCEDURES

The structure for administering the CIG Certification Program consists of the Certification Committee, which reviews, then approves, or rejects all applications for Certification or Recertification. This Committee also investigates allegations and complaints involving practising Certified Geomatics Specialists and recommends appropriate action to the Council of CIG.

The Council of the Institute monitors and develops policy guidelines for the program and is the final authority on matters involving certification and professional conduct.

Applications for Certification and Recertification will, upon receipt at CIG head office, be reviewed for completeness. When four references have submitted Confidential Reference Forms, they are combined with the application. Applications found to be in order are sent to the Chair of the Certification Committee. The Committee will meet as required to take action on all bona fide applications.

Certification and recertification are for individuals only. The designation of 'Certified' may not be used in such a manner as to indicate that a business firm or agency is certified as an entity. The Institute reserves the right to change or amend the requirements for certification and recertification, the educational credits, or the administrative fee for review and evaluation if and when deemed appropriate by the Council.

The Institute further reserves the right to revoke a certification or recertification if, in the opinion of the Council, the person concerned has violated or shown flagrant disregard for the Code of Ethics of the Institute.

Since the program is entirely voluntary, the Institute assumes no responsibility for any loss or disadvantage, real or imagined, that may be alleged to have resulted from a disapproval of an application for certification, recertification, or revocation of the certificate once given.

By submitting application, the applicant acknowledges that the Institute will apply the internal standards adopted by its Council in evaluating the applicant, and that it may reject any applicant who does not meet its minimum standards for certification or recertification. In consideration of CIG's acceptance and processing of an application, the applicant agrees to waive any and all claims of liability or responsibility against CIG and to indemnify and hold harmless CIG, its Councillors, officers, committee members, employees, agents and representatives against any and all such injury, damages, or claims made by or on behalf of any person, partnership, association, or corporation. Applicant further acknowledges that CIG, its Councillors, officers, committee members, employees, agents or representatives are not liable to the applicant, or to any other person, partnership, association, or corporation, in any way for any injury, damages, or claims alleged to be based upon or arising out of the approval or disapproval or the issuance, withdrawal, or termination of any certification or recertification issued by CIG.

APPENDIX A

CODE OF ETHICS of the CANADIAN INSTITUTE OF GEOMATICS

Honesty, justice, and courtesy form a moral philosophy which, associated with mutual interest among people, should be the principles on which ethics are founded.

Each person who is engaged in the use, development, and improvement of Geomatics should accept those principles as a set of dynamic guides for conduct and a way of life rather than merely for passive observance. It is an inherent obligation to apply oneself to one's profession with all diligence and in so doing, to be guided by this Code of Ethics.

Accordingly, each person in the Geomatics profession shall have full regard for achieving excellence in the practice of the profession and the essentiality of maintaining the highest standards of ethical conduct in responsibilities and work for an employer, all clients, colleagues and associates, and society at large, and shall:

1. Be guided in all professional activities by the highest standards and be a faithful trustee or agent in all matters for each client or employer.
2. At all times function in such a manner as will bring credit and dignity to the Geomatics profession.
3. Not compete unfairly with anyone who is engaged in the Geomatics profession by:
 - a. Publicly criticizing other persons working in, or having an interest in Geomatics;
 - b. Monetarily exploiting one's own or another's employment position;
 - c. Advertising in a self-laudatory manner
 - d. Exercising undue influence or pressure, or soliciting favours through offering monetary inducements.
4. Work to strengthen the profession of Geomatics by:
 - a. Personal effort directed toward improving personal skills and knowledge;
 - b. Interchange of information and experience with other persons interested in and using a mapping science, with other professions, and with students and the public;
 - c. Seeking to provide opportunities for professional development and advancement of persons working under his or her supervision; and
 - d. Promoting the principle of appropriate compensation for work done by persons in their employ.
5. Undertake only such assignments in the use of Geomatics for which one is qualified by education, training, and experience, and employ or advise the employment of experts and specialists when and wherever clients' or employers' interests will be best served thereby.
6. Give appropriate credit to other persons and/or firms for their professional contributions.
7. Recognize the proprietary, private, legal and ethical interests and rights of others. This not only refers to the adoption of these principles in the general conduct of business and professional activities, but also as they relate specifically to the appropriate and honest application of Geomatics. Subscribers to this code shall not condone, promote, advocate, or tolerate any organization's or individual's use of Geomatics in a manner that knowingly contributes to:
 - a. deception through data alteration;
 - b. circumvention of the law;
 - c. transgression of reasonable and legitimate expectation of privacy.