

# CANADIAN CERTIFICATION OF COORDINATE MEASURING MACHINES (CMMs) PROFESSIONALS

## 1.0 INTRODUCTION

The competence of personnel is a fundamental element of all quality systems. The ISO9000 series of standards recognizes training as an essential recommendation for an effective approach to quality management. A specialized activity, such as coordinate metrology on CMMs, requires proper qualification and certification of CMMs operators and personnel.

Qualification represents the demonstration of ability in applying the best practices for the use of CMMs in dimensional measurements. Formalized education and training, as well as work experience under competent guidance acquire it.

Certification means recognition by an independent organization (third party) of conformance to specified requirements. It is obtained by passing an examination and fulfilling certain certification requirements.

### 1.1 PURPOSE

These specifications are a Canadian national initiative for defining the qualifications and certification requirements of personnel involved in dimensional measurements and inspections on CMMs.

The specifications will establish and maintain national standards of qualifications for CMM operators, help upgrading the skills of those operators and integrate their qualifications in the quality system according with the ISO 9000 standard requirements.

The certification requirements will recognize the knowledge, training and the experience necessary to perform accurately CMM operations at levels compatible with the best practice in the field.

### 1.2 SCOPE

These specifications provide the requirements and qualifications, and the certification levels for CMMs professionals in Canada. The goal of these specifications is to set up a general scheme for training, qualification and certification of personnel operating CMMs.

### 1.3 ORGANIZATION

The required qualifications, certification levels and requirements shall be administered, monitored and endorsed by The Association for Coordinate Metrology Canada/Association Canadienne de Metrology de Coordonees (ACMC) — an

independent professional association of CMMs users in Canada.

The ACMC shall administer the examinations at different locations across Canada, as well as issue the CMM certificates to those individuals who passed successfully the certification examinations.

The ACMC will provide the curricula details and other requirements to educational institutions, training agencies or any such organization involved in the training of CMMs personnel. Upon submittal of their training programs or courses in this field, the ACMC reserves the right to endorse those courses. The endorsement means that those training programs conform to the requirements outlined in Appendix 1 - Body of Knowledge

## 2.0 CERTIFICATION LEVELS AND REQUIRED QUALIFICATIONS

### 2.1 CERTIFICATION LEVELS

There are two levels of CMM Professional certification:

- (a) **CMM Inspector**
- (b) **CMM Senior**

Individuals certified at each of the two levels may be involved in any of the following activities:

2.1.1 CMM Inspector: Understand the symbols and tolerances on technical drawings and documentation, set up the measurement and inspection on CMMs, program and run the CMMs and gather results.

2.1.2 CMM Senior: evaluate technical drawings and documentation, take overall responsibility for CMMs operations, including programming, running and evaluation of results, design procedures for any measurement requirement, evaluate the uncertainty of measurements.

### 2.2 QUALIFICATIONS

#### 2.2.1 CMM Inspector.

The requirements for certification as a CMM Inspector shall be successfully passing of the CMM Inspector examination.

### 2.2.2 CMM Senior.

The requirements for certification as a CMM Senior shall be the following:

- (a) Three years of documented experience in the field of Coordinate Metrology, and
- (b) Successfully passing the CMM Senior examination. There is no requirement to be a certified CMM Inspector to qualify for taking the CMM Senior examination.

## 3.0 EXAMINATION REQUIREMENTS

### 3.1 CMM Inspector examination

The exam conditions, such as duration, type and number of questions or passing grade for this examination shall be established by the ACMC - Certification Committee.

The topics and distribution of questions should follow closely those defined in the Body of Knowledge - Appendix 1.

### 3.2 The CMM Senior examination

The exam conditions, such as duration, type and number of questions or passing grade for this examination shall be established by the ACMC - Certification Committee. The topics and distribution of questions should follow closely those defined in the Body of Knowledge - Appendix 1.

## 4.0 CERTIFICATION PROCESS

### 4.1 APPLICATION PROCESS

Each applicant shall complete a written application with all required information for processing.

Application forms can be obtained from ACMC mailing address or web site.

Upon payment of necessary fees and processing, the ACMC - Certification Committee will notify the applicant of the details of dates, locations of the next scheduled examination. Examinations shall be scheduled periodically at geographic locations as convenient as possible to the applicant.

### 4.2 FEES

The fees shall be recommended by the ACMC - Certification Committee, and approved by the ACMC Executive Committee.

### 4.3 CERTIFICATION CARD AND CERTIFICATE.

A successful applicant will receive a card and a certificate issued by the ACMC - Certification Committee. Both, the card and certificate will have an expiration date of three years from the date of issuance.

## 4.4 RECERTIFICATION

Certification to the same level may be renewed without examination upon verification of involvement with CMMs operation for at least of 24 months of the previous three years. Attendance of seminars, conferences or other training programs in the field should also be acceptable. A verifiable record shall be provided to ACMC - Certification committee as evidence of such involvement.

### 4.5 APPEAL

An applicant who failed the examination is entitled to an appeal, in writing, to the ACMC - Certification Committee. A special panel of judges will analyze the appeal and make a decision. The decision of the Appeal panel is final.

### 5.0 PROMOTION

ACMC shall promote actively the Certification initiative at all federal and provincial bodies and agencies. When necessary, ACMC will advertise in the media details of certification process as well as dates and location of the certification examinations.

### 6.0 INTERNATIONAL RECOGNITION.

ACMC shall analyze similar certification schemes in other countries and recognize the equivalent certification level of foreign CMM personnel working in Canada. In turn, ACMC will obtain equivalent recognition Canadian Certified CMM personnel working outside Canada.

### 7.0 MISCELLANEOUS

The examination questions and all related materials shall be available in both English or French languages.

### APPENDIX 1 BODY OF KNOWLEDGE

APPENDIX 2. List of Educational organizations delivering training programs endorsed by ACMC

APPENDIX 3 List of members of the ACMC - Certification Committee

APPENDIX 4. List of reference publications