

Microscopy Society of America Certified Electron Microscopy Technician

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Introduction

The Microscopy Society of America (MSA) provides the only certification of technicians in biological transmission electron microscopy available in the Americas [1] and was initiated in 1978 to establish standards for technical skills and is recognized world-wide. Recently, the MSA Council approved the acronym, CEMT, (Certified Electron Microscopy Technician) to provide a professional identification of certification. A Certified Electron Microscopy Technician may use these initials for as long as the certification remains valid (e.g. Jane Doe, AA, BS, CEMT).

The Certification Board administers the certification program and is appointed by the Council of MSA. Members of the microscopy community serve on the Board and it is they who develop regulations, formulate and evaluate examinations, and interpret policies [1]. Two examination cycles are offered each year, one in Spring and the second in Winter.

What is Needed to Qualify?

The formal programs in electron microscopy prepare the candidate for the written and practical exam and time spent in the intensive hands-on instruction may serve as a portion of the required experience [2]. However, MSA “certification” should not be confused with the earned “certificate” upon completion of these programs.

For those technicians who learned TEM “on the bench”, preparation for the exams serves as a “refresher course” in all the basics of resin chemistry, fixations, processing, etc. Technicians with the required educational and/or occupational qualifications can attain certification by completing an application and passing both written and practical examinations [2].

How Does One Begin?

The first step towards certification is completing the application (available on the MSA website) and submitting it with the necessary fee, letters of recommendation and experience /education documentation to the MSA Business office. Once the application is processed, the candidate's information is forwarded to the Certification Board Chairperson for evaluation and approval. Written exams are given only during the indicated cycle (See certification website) and the practical exam is not accepted until the candidate passes the written exam [1].

The practical exam is graded by at least two of the board members who have expertise and knowledge of the submitted material. This exam requires the preparation of blocks, sections and images from three different tissues (NON pathological and NON human) and submitting them for evaluation. All work must be done independently by the candidate with the exception that a supervisor or qualified individual may assist with the acquisition of the sample material. It is expected that the candidates submit their BEST (publication quality) work [1].

What are the Benefits of Certification?

An official numbered MSA certificate and a certification “C.E.M.T” pin are awarded to successful candidates. The initial period of certification is one year and may be renewed on a 5-year cycle by payment of the appropriate fee. MSA Certification can be an asset in assuring prospective employers of the proficiency of the job candidate. It may be the deciding factor whether to hire the certified technician or the un-certified candidate. Employers who hire a CEMT can be assured that the technician has a solid understanding of the underlying principles of sample processing, as well as instrumentation (basic electron optics, etc). Certification may also be important in determining job classification, salary level and the potential for advancement or promotion. Networking is a major benefit of certification. The technician is a member in a “community” of certified people and a core of “go to” contacts [2].

Currently, there are 155 active CEMTs [4]. They are employed in universities, research centers, hospitals, core facilities and vendors. They live and work all across the United States, China, Canada and Switzerland [4].

For more information concerning certification, please refer to the MSA Website, <http://www.microscopy.org/education/programs.cfm> where prospective candidates will find detailed instructions, necessary forms, study syllabus and example questions for the written exam. One will also find the names and contact information for the board members who can answer any questions.

References:

- [1] Microscopy Society of America Website: <http://www.microscopy.org/education/programs.cfm>
- [2] Kysar, P., et. Microscopy Today, September 2013, Volume 21, Issue 5, page 46.
- [3] Petrali, J, Microscopy Today, January 2010, Volume 18, Issue 1, page 40.
- [4] Information received from the Microscopy Society of America Main Office, January 6, 2014