Criteria for evaluation of institutions awarding degrees and higher diplomas in Medical Laboratory Technology

Compiled by subject expert panel on Medical Laboratory Technology (MLT), Ceylon Medical College Council.

CEYLON MEDICAL COLLEGE COUNCIL

Introduction

Medical Laboratory technology (MLT) is a field of science that deals with the clinical samples obtained from humans and related material (food, animal products). Those who become professionals in this field are recognized as Medical Laboratory Technologists (MLTT). The license to practice MLT (to handle clinical samples) within Sri Lanka is authorized by the Sri Lanka Medical council (SLMC) by registering them in registry of MLT. The SLMC registration has a mandatory requirement of a proficiency certificate issued by Ceylon Medical College council (CMCC) . The proficiency in MLT certificate issued by CMCC to those who have undergone standard training at recognized institutions which include theory, practical sessions and clinical (bench) training. Though the proficiency training of MLT was confined to the health ministry in Sri Lanka at the beginning, later MLT training was developed in universities and other institutions (both government and private sector). Many professionals have obtained such qualifications from foreign institutions and universities as well. CMCC as the recognizing body of such qualifications has a framework to identify the institutions that could provide such standard training and subsequently recognize the individuals who could become professions in this field. However, the field of MLT is a continuously changing field with new developments and CMCC has identified the necessity of improving the framework of recognition of institutions that could provide such training. This document is developed by a panel of experts in MLT related subject areas to evaluate such universities and institutions (local and foreign) and facilitate the recognition .

1.0 General evaluation

This section proposes the general details of the names of the recognizable programs, minimum duration of the training period for each qualification , the entry criteria that should be considered by training institutions at the time of student enrollment and the recommendations for language of teaching. The details provided here could be used as a standard framework for evaluation of MLT training institutions on which the programs may further develop and improve.

1.1 Name/ title of the program

The expert panel identifies the following names and qualifications obtained by individuals for the recognition as a MLTT.

1. Higher Diploma in Medical Laboratory Technology (HDMLT)
2. Bachelor of Science in Medical Laboratory Sciences (BSc in MLS)

*Any other name/ title should be considered on cases by case basis by the expert panel of MLT before giving the approval

1.2 Duration and credit structure

The following minimum durations should be by the programs providing relevant training in the field. The substantial amount of this training should be dedicated for MLT related subjects (the details are given in section 2.0 and the annexture 11).

1. HDMLT : Two (02) years /Minimum of 60 credits
2. BSc in MLS : Four (04) years / Minimum 120 credits

1.3 Entry criteria

The following entry criteria should be considered in enrolling students for the training programs. The criteria are already in practice by Ministry of Health and government universities of Sri Lanka.

1.3.1 HDMLT

Three passes in A/L (Biology/ Mathematics) with a credit pass in Chemistry in one sitting Or an equivalent for GCE A/L

and

Minimum of a credit pass for English GCE O/L or an equivalent

1.3.2 BSc in MLS

Minimum simple passes in GCE A/L Biology and Physics with a simple 'S' pass in Chemistry in one sitting or an equivalent GCE A/L

and

Minimum of a simple 'S' pass for English GCE O/L or an equivalent

1.4 Language of teaching and instructions

English should be the language of teaching as the language of instructions. The requests are made in English in clinical settings in Sri Lanka (and most of the foreign countries)

2.0 Academic program

The academic program of each training course should show evidence of teaching essential subject areas recognized by the expert panel . Section 2.1 shows the essential subjects areas related to MLT that should be included in academic programs that seek recognition with CMCC. Tables 2.1

and 2.2 indicate the credit structure needed to cover the subject areas proposed. Further details of the subject areas are included in annexure 11.

2.1 MLT related subject areas to be included in the academic program.

These MLT related subject areas should be included within course modules of the academic program apart from basic sciences and other subjects.

1. Chemical pathology
2. Microbiology
3. Molecular biology and genetics
4. Immunology
5. Haematology
6. Transfusion medicine/ Blood bank serology
7. Histopathology and cytology
8. Parasitology and Medical entomology
9. Laboratory management

This is recommended only for minimum requirements and the institutes are responsible for the delivery of comprehensive programs with any other subject areas.

2.2. Proposed Credit structure for Academic programs

Table 2.1 and 2.2 shows the summary of the credit structure recognized by the expert panel on MLT programs for HDMLT and BSc in MLS respectively for the recognition of academic programs offered by universities /institutions locally and internationally.

Table 2.1: Subject related credits for recognition of HDMLT

Subject	**Number of credits**
Chemical pathology	13
Microbiology	18
Molecular biology/Genetics	01
Immunology	01
Haematology	08
Transfusion Medicine/ Blood bank serology	02
Histopathology and cytology	08
Parasitology and Medical Entomology	06
Laboratory management	13
Total	**70**

- The HDMLT programs may include basic sciences (chemistry, anatomy, physiology) / Information technology (IT)/ English, statistics.

- A detailed description of the academic program should be provided by the relevant institutes including the modules/ teaching learning methods/ credit structure for evaluation.

- The essential components of the detailed curriculum will be assessed by the expert panel and recommendations will be given to CMCC
- Minimum total credits for the program should be 60 credits.

Table 2.2: Subject related credits for recognition of BSc in MLS

Subject/activities	**Number of credits**
Chemical pathology /Clinical Biochemistry	16
Microbiology	20
Molecular biology Genetics	05 05
Immunology	04
Haematology	15
Transfusion medicine / Blood Bank Serology	06
Histopathology and cytology	12
Parasitology and Medical entomology	06
Laboratory management	16
Total	**105**

- The BSc of MLS programs may include basic sciences (chemistry, anatomy, physiology) / Information technology(IT)/ English/statistics/ Research projects .
- A detailed description of the academic program should be provided by the relevant institutes including the modules/ teaching learning methods/ credit structure for evaluation.

- The essential components of the detailed curriculum will be assessed by the expert panel and recommendations will be given to CMCC
- Minimum total credits for the program should be 120 credits.
- Approximate minimum credits for subjects related to MLT should be 84 (105*80/100).

2.3 Inclusion of Soft skills course units

The inclusion of soft skills for the training courses is encouraged to meet with the current trends in education and long-term development of professionals.

Example: Soft skills such as communication, professional ethics and code of conduct, teamwork, presentation skills could be included to program to enhance the human qualities of the trainee.

*Could be made essential non-credit modules

3.0 Physical facilities

CMCC recognizes the importance of physical facilities including lecture halls, examination halls, teaching/student laboratories, rest areas, libraries and cafeterias within the institutes for facilitation of teaching and learning. ***The physical facilities should be evaluated by CMCC through a site visit to ensure the quality and capacity.***

The following criteria should be used for evaluation of essential facilities like lecture halls and student/ teaching laboratories.

- Lecture halls: Capacity and number will be considered for number of students enrolled for batch and number of intakes per year.
- Teaching/student laboratories : should be evaluated during the review and decide on the maximum number of students that should be allocated. <u>The safety of the students and standard space requirements will become determinant of the number of students enrolled per lab, per session.</u>

- A minimum of three (3) teaching laboratories dedicated to given subject areas should be established within the institution.
    1. Microbiology and Parasitology
    2. Histopathology
    3. Chemical Pathology and Haematology

- The institution conducting the program should provide a list of equipment used for student training and the adequacy of the number of instruments for the enrolled number of students should be determined by the site visiting evaluators.
- IT laboratory/ Library could be common facilities shared with the other programs.

4.0 Proposed credentials of the academic staff

The academic staff members involved in teaching should process the relevant subject area expertise to teach in the identified programs. It is recommended to get the service of permanent academics for the positions as much as possible. The subject areas with small number of credits could be taught by visiting experts in the relevant fields. Sections 4.1 and 4.2 indicate the recommended qualifications of academics that should be recruited in relevant programs **. The number of students enrolled per batch per academic year should be determined by the teacher student ratio as given in the section 4.3.**

4.1 Credentials for teaching in HDMLT

To be recruited as a Lecturer and above with at least one of the following qualifications

Higher Diploma MLT with minimum of 5 years-experience

BSc in MLS/ BMLS

MBBS with MD /MPhil/PhD in relevant subjects

Related subjects in special areas could be taught by qualified academics in the subject on visiting basis.

4.2 Credentials for teaching in BSc in MLS (academic should have the relevant qualifications to teach the selected subjects)

Lecture and above

MBBS with MD in relevant subjects

MBBS with MPhil/PhD/DM in relevant subject area.

BSc in MLS with MPhil/PhD

Related subjects in special areas could be taught by qualified academics in the subject on a visiting basis.

Eg: BSc in relevant subject areas with Post graduate qualifications in relevant subject

BVSc /BDS (is also included as a separate category) with postgraduate qualifications in relevant subjects .

4.3 Teacher: Student ratio

The minimum of 1: 10 teacher student ratios should be maintained

- When calculating Teacher; Student ratio both permeant staff and part time teaching staff to be considered.
- Part time lecturer should cumulatively achieve a minimum number of 10 hours of teaching altogether for a batch to be considered for calculation for teacher student ratio.

- It is recommended to recruit permanent academic staff . This will help the institution to retain their skills and expertise in their team throughout the program, which is very important for the quality assurance of the training.

5.0 Clinical / bench training

The clinical /bench training where the trainees get exposure to clinical settings in hospital laboratories (receiving of samples, safe handling of specimens, specimen processing, interpretation of results and timely releasing of reports) is an essential part of the training. This part of training is mandatory and the program should show enough evidence of facilities for such training (eg: Allocate time during training, credit allocation for training and MOUs with partner laboratories)

Standards of local institutions that Medical Laboratory Technologists are being trained in could be evaluated on the following criteria. A site visit to partner laboratories is recommended for the evaluation regarding the suitability of such laboratories for the purpose.

1. Level of competency expected by the teaching program.
2. Range and the number of tests performed by the relevant laboratories.
3. Public Health Regulation for Laboratories/Hospital Ranking (will be used to recognize the ranking of the relevant training institutions)
4. Accreditations received by Laboratories of recognized institutions.
5. A logbook should be maintained during training and should be produced to CMCC whenever requested.
6. Qualifications of the trainers (MLT related/ SLMC registered) in relevant institutions.
7. Registration details of the laboratories in MOH

*Foreign universities should provide details about equivalent / registration details of the respective country

6.0 Number of students enrolled.

The programs should provide the details of the number of student that they are enrolling per batch and the number of batches enrolled per year. The evaluation of the adequacy of the facilities to accommodate the given numbers should be done considering the criteria described in section 3.0 , 4.3 and 5.0 as given below.

The number of students enrolled per batch / number of batched per year will be decided on following criteria.

1. Physical facilities (capacity of lecture halls and number of student laboratories)
2. Teacher: student ratio
3. Capacity of the clinical training centers

7.0 Assessment

The program should provide the details of the assessment of the courses taught . The type of assessment should be aligned with teaching and learning. The duration of assessments should be based on teaching hours, credits allocated for modules, the content area andthe expected competencies abilities

Details of the assessment should be included in student handbook (should be provide as an evidence for evaluation)

8.0 Certificates/ transcripts

Standard format should be followed. Should be equivalent to the format of the of University of Colombo or any other recognized university. A sample transcript and the certificate should be provided.

****The CMCC may hold a competency test for individuals from the Universities/Institutions before awarding the Proficiency certificate (Annexure I).**

Proposed criteria for competency testing – MLT

The expert panel in MLT would like to propose a compulsory competency test for those who apply for registration as medical laboratory technologists. The applicants should pass the competency test to be eligible to be recognize by CMCC as MLTT. The proposal is made with a view to ensure the competency of the future MLTT serving in Sri Lanka. It will also help to overcome any discrepancies observed among different training courses (local and abroad).

Competency test – MLT

Competency test should be made Compulsory for all applicant from local and foreign institutions with the exception given to Ministry of Health Sri Lanka / Sri Lankan Government Universities / KDU

Subject areas to be tested.

HDMLT

Six (6) papers : Chemical pathology/Microbiology/ Parasitology/ Haematology and Blood Bank serology / Histopathology and Cytology techniques/ Laboratory management)

BSc in MLS

Seven (7) papers {(Chemical pathology/Microbiology/ Parasitology/ Haematology and Blood Bank serology / Histopathology and Cytology techniques/ Laboratory management/ Combined paper for Molecular biology, immunology and genetics)

Format of the examination

1. Written paper : Each paper should consist of 40 T/F MCQs and 2 SEQs
2. Practical (Wet practical/ OSPE) – Duration will be varying from subject to subject based on the competency level
3. Viva (Practical based during the practical session)

Regulations of passing the competency test

1. 50% or more in culminative of marks for each subject needed to successfully complete the competency test (Minimum for 45% theory and 50% for practical components needed to pass the subject)
2. Could pass the subjects in different settings. There is no requirement to pass all the subjects in one sitting.
3. A maximum of four(04) attempts will be given for each subject.