

1st Cambodia National Medical Laboratory Quality Conference

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Cambodia
Medical Technology training Program

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Introduction

- Laboratory technicians are the people who perform routine medical laboratory tests, giving the information needed to diagnose, treat, and prevent disease to the clinician.
- The laboratory technicians are trained in different curricula depending on the level of skills and responsibility during their work.
- Laboratory Technician program had been develop since the year 1980 and reviewed in 1993, 1998, and 2015 to adapted to health system.

History of Medical Technology training since 1980

- Primary laboratory technician (one year program): in 1980s in order to fill the lack of laboratory technician in this period.
- The secondary laboratory technician (3 years program): from 1981 to 1998 (Associate degree)
- From 1999 to 2014, to adapted to adapted to health system, the secondary laboratory technician program was modify form 3 years study program to 2 years study.
- The secondary laboratory technician program had been revised to become the National program of Associate degree in technical laboratory (3years program) in 2015 (adopted by MOH and MOEYS)

Objective of the program

To train students to become technicians in medical laboratories that have good knowledge, skills and attitude to be able to provide reliable and acceptable basic clinical services in accordance with the strategies determined by the Ministry of Health.

Learning outcome of laboratory technician:

- Performs the work by skillful professional practice in medical laboratory techniques at the service premises.
- Have good behaviors and respect for the people regardless of their economic, religious and religious situation
- Providing reliable, accessible medical services to patients, families and communities.
- Team up with other health professionals in accordance with the Ministry of Health's structure, policies, and codes of ethics.

Curriculum structure

Year 1

No	Topic	Theory (y)	Lab Practice (h)	Clinical lab practice (h)	Credit
1	Sociology	15			1
2	Life Science	30			2
3	Biology	30			2
4	Physic	30	30		3
5	Chemistry	30	30		3
6	Philosophy and Khmer culture	15			1
7	Communication Skill	15			1
8	English medical terminology	45			3
9	Basic computer	15	30		2
10	Law and Ethic in Medical Technology Practice	15			1

Year 1 (cont.)

	Topic	Theory (y)	Lab Practice (h)	Clinical lab practice (h)	Credit
11	Anatomy and Physiology	90			6
12	Bacteriology	15			1
13	Virology	30			2
14	Parasitology	15			1
15	Mycology	15			1
16	Laboratory Material and equipment	30	30		3
17	Specimen and Laboratory Safety	15	60		3
	Total Year 1	450	180	0	36

Year 2

No	Topic	Theory (y)	Lab Practice (h)	Clinical lab practice (h)	Credit
1	Immunology	45			3
2	Immunology and serological technic	15	60		3
3	Biochemistry	30	30		3
4	Hematology and hemostasis	30	30		3
5	Blood transfusion sciences 1	30	30		3
6	Laboratory Technic in Microbiology (bacteriology)	30	30	45	4
7	Laboratory Technic in Microbiology (Parasitology)	15	30		2
8	Laboratory Techniques in Hematology and Hemostasis I	15	60		3
9	Laboratory Techniques Biochemistry II	30	30		3
10	Clinical Practice Specimen and Laboratory Safety			45	1

Year 2 (Cont.)

No	Topic	Theory (y)	Lab Practice (h)	Clinical lab practice (h)	Credit
11	Lab Techniques in Microbiology II(Mycology)			45	1
12	Lab Techniques in Microbiology II(Parasitology)	15	30		2
13	Laboratory Techniques in Immunology I	15	60		3
14	Laboratory Techniques in Urine and Body Fluid Analysis	15	30		2
15	Clinical Practice Blood Transfusion Science			45	1
16	Laboratory Management Generality	15			1
	Total year 2	300	360	180	36

Year 3

No	Topic	Theory (y)	Lab Practice (h)	Clinical lab practice (h)	Credit
1	Lab Techniques in Microbiology II(Bacteriology)	30	60	45	5
2	Blood transfusion sciences 2	30	60		4
3	Hematology and Hemostasis	30	30	45	4
4	Parasitology	15	60	45	4
5	Pharmacology	30			2
6	Laboratory Techniques in Biochemistry III	15	30	45	3
7	Statistic Science	30			2
8	Laboratory Management II	30			2
9	Immunology-serology			45	1
10	Advanced Laboratory Management			45	1
11	Internship			900	10
	Total Year 3	210	300	1170	40

Program and duration

Year	Theory		Class practices		Clinical practices		Internship*		Total by Year	
	Credits	Hours	Credits	Hours	Credits	Hours	Credits	Hours	Credits	Hours
I	30	450	6	180	0	0	0	0	36	630
II	20	300	12	360	4	180	0	0	36	840
III	14	210	10	300	6	270	10	900	40	1680
Total	64	960	28	840	10	450	10*	900*	112	3150

Credit total =112 including internship

1 Credit = 15h of Theories = 30h lab practice = 45h Clinical laboratory practice

Other laboratory personnel training program

1- Bachelor degree in technical laboratory training from the Associate degree program:

Objective: to provide students a Bachelor degree of Science in Medical Laboratory, **continue from an associate degree** with a good knowledge, skills and attitude in providing biotechnology services and able to work as a technical manager, quality assurance of biomedical laboratories and participate in research

Program and duration of the bridging

Year/ Semester	Theory (T)		Skill Lab		Clinical practice		Field study/ Internship		Total semester	
	Credits	Hrs	Credits	Hrs	Credits	Hrs	Credits	Hrs	Credits	Hrs
Semester I	9	135	3	90	1	45			13	270
Semester II	12	190	1	20	0	0			13	210
Total Year 1	21	325	4	110	1	45			26	480
Semester III	6	90	1	30			11	495	18	795
Semester IV					1	45	3	135	4	180
Total Year 2	6	90	1	30	1	45	3	135	22	180
Total 2 Years	27	415	5	140	2	90	14	630	48	1455

2-Medical Biology Specialize diploma (DES Biologie Médicale)

Pharmacists

Medical Doctors

To be a medical biologists professional to :

Ensure the quality of biomedical analysis

Manage the activities of a medical biology laboratory

Establish the functional link between clinical and laboratory



- Lab manager in HOSPITALS AND HEALTH FACILITIES
- TEACHERS AND RESEARCHERS IN A CAREER UNIVERSITY
- PRIVATE SECTOR

3 Years training Program of DES medical Biology

Total duration								
Hour				Credit				
Theory	Lab. Practical	Internship	Total hour	Theory	Lab. Practical	Internship	Thesis	Total Credit
1st Year								
255	120	0	375	17	4	0	0	21
2nd Year								
105	30	1080	1215	7	1	24	0	32
3rd Year								
75	0	960	1035	5	0	21	10	36
Total: 2625 h				Total 89 Credits				

* 1credit = 15h lecture = 30h discussion = 30h lab practice = 45h internship

3-Master of Medical Biology

Objective: train student to become:

- A manager of the medical laboratory in the public or private sector.
- A senior technician working in biomedical laboratories to ensure laboratory quality.
- A candidate for Doctor of Medical Biology.

Total Hour and Credit of master program

Semester/ year	Theory		Skill practice			# Credit*
	Lecture (h)	Discussion (h)	Lab practice (h)	Internship (h)	Community work (h)	
Semester 1 Year 1	120	90	75			13.5
Semester 2 Year 1	105	150	45			13.5
Total 1st Year	225	240	120			27
Semester 1 Year 2	75	120				9
Semester 2 Year 2				585 (6 months)	45	14
Thesis						10
Total 2nd Year	75	120		585	45	33
Total Master	300	360	120	585	45	60

* 1credit = 15h lecture = 30h discussion = 30h lab practice = 45h internship

Conclusion

- There are different preservice training program for medical laboratory personnel
- Those program had been review frequently to adapt the need of scientific development and public health .
- However, these programs are not yet well enough, requiring support from partners to improve the quality of training that can be recognized in regional and internationally.

Thanks

