Quality Assurance Council

2022

Subject Benchmark Statement

Indigenous Medicine

University Grants Commission – Sri Lanka

SUBJECT BENCHMARK STATEMENT

IN

INDIGENOUS MEDICINE

Quality Assurance Council
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CONTENTS

FOREWORD

1. INTRODUCTION

1.1 About this Subject Benchmark Statement (SBS)

Subject benchmarking is an essential component of quality assurance in the university system. The SBS in Indigenous Medicine provides an important guideline pertaining to each degree program, describes the nature of study in each indigenous medical system and academic standards that should be achieved at the completion of each indigenous medical degree. SBS provides explicit academic reference point acquiring the level descriptors stated in the SLQF 6 and the specific threshold for awarding an indigenous Bachelor's degree with the required knowledge, clinical skills, abilities, research, innovations and competencies that have to be developed to protect indigenous knowledge characteristics to each indigenous medical system. It describes the essential features which enable a graduate in indigenous medicine to function effectively, at the outset as an intern medical officer and after satisfactory completion of internship, as a basic indigenous medical doctor who will provide independent primary health care service or as an indigenous medical officer in state or private sector. Further, SBS also enable the graduate to be a competent trainee in a postgraduate programme leading to further specialization. While developing this SBS, attention was drawn on the training requirements that need to be addressed in terms of the grooving health care needs of the community.

This SBS in indigenous medicine act as an important document for the indigenous medical faculties, internal and external programme reviewers. It also provides an authentic and standard statement of expectations of an indigenous medical graduates, employers and other stakeholders. Further, this SBS will assist international comparison of indigenous degrees (BAMS, BUMS and BSMS) with pertinent other degrees.

These Indigenous Medical degree programmes namely, Bachelor of Ayurveda Medicine and Surgery (BAMS), Bachelor of Unani Medicine and Surgery (BUMS) and Bachelor of Siddha Medicine and Surgery (BSMS) lead to a professional qualification which requires the graduates to be registered in the Sri Lanka Ayurveda Medical Council (SLAMC) after successful completion of the one (1) year internship. The qualified personal in an indigenous medical system with the required qualification can practice nationally and globally when he/she will have registered under the SLAMC. Otherwise, it is considered as malpractice, unethical and punishable offence.

The SBS in Indigenous Medicine is started to prepare in year 2021.This is a part of the overall quality assurance frame work that supports academic standards and dissemination of good practices in universities in Sri Lanka.

A 15-member panel consisted of Professors and selected Heads of Departments from each Indigenous Medical Programme (Ayurveda, Unani and Siddha) were selected to represent the subject disciplines. The SBS committee was divided into 03 subcommittees. These subcommittees have been assigned the work based on the new Quality Assurance Council (QAC) format for SBS development, sections and the learning outcomes identified in the 2015 version of Sri Lanka Qualifications Frame work (SLQF). To comply with the COVID 19 pandemic this task was completed in seven Zoom-based meetings.

1.2 Defining Principles

The SBS in Indigenous Medicine is mainly based on the principles of outcome – based education and student – centered learning. This principle was adopted in indigenous medical system since long ago known as "*Gurukula education*" system. In present era it is modified with new medical educational tools and technologies, which collectively defines the final outcome of the degree programme, as the BAMS/ BUMS/ BSMS graduate. Each programme outcome is achieved through the graduate profile and it is based on SLQF learning outcomes. However, this statement does not focus to assign a specific weight to each learning outcome within the overall degree programme. Consequently, the individual study programme has been designed considering SLQF Level 6 learning outcomes while developing each subject content in each indigenous curriculum (Ayurveda, Unani and Siddha).

The curriculum of each degree programme is characterized by the need for undergraduates to acquire not only knowledge and understanding but also practical, research, and clinical skills and appropriate attitudes.

In addition, each curriculum should be designed using most appropriate way that undergraduates are globally recognized. Further, the study programmes are aimed to develop competencies in English language, information technology and research methodology to follow 6 credits research project in order to achieve SLQF Level 6 learning outcomes.

Teaching – Learning (T/L) and assessment methods have also been identified and designed based on the principles of Outcome - based education and Student - centered learning relevant for indigenous medical study programmes. Therefore, this statement will guide to select the most appropriate methods in their study programmes.

2. DEGREE PROGRAMMES COVERED BY THIS STATEMENT

This statement is concerned with professional degree courses leading to award of the BAMS/ BUMS/ BSMS (Bachelor of Ayurveda/ Unani/ Siddha Medicine & Surgery) by all the higher educational institutes in Sri Lanka. These institutes are encouraged to develop their own innovative approaches in designing and delivering their courses within the broad framework described here.

The indigenous degree programmes in Ayurveda, Unani and Siddha fall into SLQF Level 6 with five-year duration. Thus, the **minimum volume of learning in terms of credits for five academic years is 150**. Typical student workload of a study program is defined as 1500 notional learning hours in an academic year of 30 weeks. One credit is **equivalent to 50 notional learning hours** for taught courses, clinical training and field visits whereas, in research project and industrial training, one credit is **equivalent to 100 notional learning hours.** The notional learning time should include all learning activities required for the achievement of the learning outcomes including, direct lecture hours, small group discussions, tutorials, skill hours (clinical and practical skills) and independent learning hours. A key component of each study programme would be the research project worth of a minimum of 6 credits (600 notional hours) that is carried out under the supervision of academic(s).

Awarding the Degree

With the concurrence of the Sri Lanka Ayurveda Medical Council (SLAMC), all the higher educational institutes conducting indigenous medical study programmes in Sri Lanka, the degree is awarded after successful completion of the final BAMS/ BUMS/ BSMS examinations.

3. NATURE AND THE EXTENT OF THE STUDY PROGRAMME

3.1 Nature of the Course Units

These indigenous medical programmes namely, Bachelor of Ayurveda Medicine and Surgery (BAMS), Bachelor of Unani Medicine and Surgery (BUMS) and Bachelor of Siddha Medicine and Surgery (BSMS) have primarily concerned in providing academic education in the basic concepts and the clinical sciences, in order to prepare the graduates for professional practice as doctors. Course units of each study programme provide the graduate with intellectual skills such as analysis, reflection, problem-solving, and clinical reasoning, and has vocational, ethical and legal components.

Each study programme contains pre-clinical, para-clinical and clinical components. Preclinical stage is covered by a series of course units containing lectures, tutorials, small group discussions, practical sessions, field visits, and problem-based teaching-learning activities. Undergraduates are provided the fundamental principles of Ayurveda or Unani or Siddha, basic modern medical sciences and behavioral sciences. The para-clinical stage bridges the preclinical and clinical stages of the degree programme. The content area of the para-clinical stage is covered by a series of course units containing lectures, tutorials, small group discussions, practical sessions, field visits, and problem-based teaching-learning activities. Clinical stage covers the clinical appointments in the Ayurveda hospitals and other related training centers. This stage provides OPD and IPD exposure with different cases, clinical demonstrations, skill demonstrations, minor surgical procedures, and case discussions. These activities will cover relevant basic knowledge, practical skills and their clinical applications in relation to the core topics of the course units.

The knowledge and practical skills acquired from modern medicine during each study programme would be a bridging knowledge in order to facilitate understanding of the relevant indigenous medical system, facilitate research interpretation and for the effective communication with modern world. Therefore, courses in basic knowledge about the modern concepts of human structure, function, diseases and identifying the medical emergencies and legal aspect, as well as about commonly available basic investigations should be delivered. However, uniqueness of each indigenous medical system should be preserved.

The core curriculum should include the essential knowledge, technical skills, clinical skills and professional attitudes that are required by an indigenous medical graduate to function effectively as an indigenous medical practitioner and to commence postgraduate training.

3.2 Pre and Para Clinical Stream

- To produce a competent and compassionate Ayurveda, Unani and Siddha medical practitioner, each study program needs to give essential knowledge of pre and para clinical training.
- Minimum period of hours of the pre and para clinical stream subjects are given as follows.

Pre - Clinical Subjects	**BAMS Subjects**	**BUMS Subjects**	**BSMS Subjects**	**Minimum Notional Hours**
Language	*Sanskrit*	*Urdu* wa *Arabic*	Tamil	100
English Language				200
Information Technology				200
History	*Ayurveda Ithihasaya*	*Tareekh e Tibb*	*Siddha Maruthuva Varalaru*	100
Medical Ethics and Professionalism				100
Ontology	*Padarthavijñāna*	*Mantiq wa Falsafa*	*Pathartha Guna Vingnanam*	50
Yoga (BAMS/ BSMS) Ilaj Bit Tadbeer (BUMS)				200
Authentic texts	*Samhitha*	*Dheewaanut Tibb*	*Siddhar Elakeyam*	100
Basic Principles	*Maulika Siddhanta*	*Kulliyat Umoore Tabiya*	*Siddhamaruthuva Adipadai thathuvam*	200
Anatomy	*Sarīraracanāvijñāna*	*Tashreeh e Badan*	*Udal Koorugal*	200
Physiology & Biochemistry	*Sarīrakriyāvijñāna & Jaiva Rasayana Vidyava*	*Manafiul Aza and Keemiya Hayawiya*	*Udal thozhiliyal and Uyir vedhiyal*	200
Alchemy	*Rasa Shastra*	*Ilmut Taklees*	*Thathu Jeevaeyal in Kunapadam*	300
Pharmacy	*Baisajjakalpana*	*Dawa Sazi*	*Marunthuseimuraieyal*	350
Para - Clinical Subjects	**BAMS Subjects**	**BUMS Subjects**	**BSMS Subjects**	**Minimum Notional Hours**
Toxicology and Jurisprudence	*Agadatantra* and *Voharika Vaidya Vidyawa*	*Ilmussumoom wa Tibbe Qanoon*	*Nanchiyalum Neethimaruthuvamum*	200
Pharmacology	*Dravyagunavijnana*	*Ilmul Advia*	*Moolikaiyiyal in Kunapadam*	300
Pathology	*Roga Nidana*	*Mahiyatul Amraz*	*Noinaadal*	200
Fundamentals of therapeutics	*Chikithsamuladharma*	*Usoole Ilaj*	*Chikitsai Adippadaiththuvankal*	100
Community Medicine	*Swasthavritha*	*Tahaffuzi wa Samaji Tibb*	*Samooganala Maruthuvam*	300
Research Methodology				100
Research Project				600

3.3 Clinical Stream

- Sufficient clinical training should be given to students in each study programme to produce competent and compassionate indigenous medical practitioner with required clinical skills.
- Minimum of 3000 hours of training in clinical disciplines should be given in each study program.
- Minimum training periods (in hours) of the major clinical subjects are given as follows.

Clinical Subjects	**BAMS Clinical Subjects**	**BUMS Clinical Subjects**	**BSMS Clinical Subjects**	**Clinical appointment & teaching (Minimum Notional Hours)**
Medicine	*Kayachikithsa*	*Moalejat*	*Maruthuvam*	1000
Surgery	*Shalya Tantra*	*Ilmul Jarahat*	*Aruvai Maruthuvam*	**350**
ENT, Ophthalmology & Dentistry	*Shalakya Tantra*	*Amraz e Ain, Anf, Uzn, wa Halq*	*Siroroga Maruthuvam*	**350**
Gynaecology & Obstetrics	*Streeroga & Prasuthi Tantra*	*Amraze Niswan, Qabalat wa Naumaulood*	*Mahalir Maruthuvam Mahappetiyal*	**350**
Paediatrics	*Kaumarabhrithya*	*Amraz e Atfal*	*Kuzhanthai Maruthuvam*	**350**
Traditional Medicine	*Desheeya Chikithsa*	*Desheeya Chikithsa*	*Paramparai Maruthuvam*	**600**

Each Indigenous Medical Degree Programme (BAMS, BUMS and BSMS) should maintain the minimum total 7500 notional hours.

At the end of the training of BAMS/ BUMS/ BSMS study programme, a graduate should be able to provide medical care with understanding the wider health care system prevailing in the country and the points of referring to other medical systems available

in the best interest of the patients; with an understanding of their professional, ethical, social and legal responsibilities.

3.4 Drug Manufacturing Skills

Drug manufacturing skills are essential components at the end of the training of BAMS/ BUMS/ BSMS course and thus, a graduate should be able to provide medical care with sufficiently developed practical skills of identification of medicinal plants, Good Manufacturing Practices (GMP), Good Collection Practices (GCP), Good Storage Practices (GSP), Good Ethical Practices (GEP), Good Procurement Practices (GPP) and Good Safety Practices (GSP).

3.5 Electives

The indigenous medical course leads to a professional degree where students of BAMS / BUMS / BSMS are virtually trained to aspire to a career as an Ayurveda/ Unani/ Siddha medical doctor which encompasses the roles of an indigenous health care provider, drug manufacturer, researcher and an expert on medicinal plants. Therefore, while the core curriculum is made compulsory, opportunities for student's choice in relevant fields mentioned above could be encouraged through the periods of elective studies.

3.6 Fall-Back Qualifications

It is desirable for all higher educational institutes offering BAMS/ BUMS/ BSMS to develop 'fall-back' option for student who are unable or unwilling to complete the BAMS/ BUMS/ BSMS degree programmes provided they have fulfilled certain minimum academic criteria. However, such qualifications shall not be equivalent to the professional degree of BAMS/ BUMS/ BSMS and shall not entitle them to register with the SLAMC as a registered Ayurveda/ Unani/ Siddha medical practitioner.

Further, the fall-back qualification granting a Higher Diploma in the relevant field for the students who completed 60 credits and 3000 notional hours with the level descriptor SLQF Level 4 or granting a BSc for the students who completed 90 credits and 4500 notional hours with the level descriptor Level 5 of the SLQF guidelines given by the UGC.

However, if a student is expelled from the university on disciplinary grounds, then such a student may not be eligible for award of a fall-back qualification.

4. AIM AND OBJECTIVES OF EACH STUDY PROGRAMME

The aim of each study programme is to produce graduates who are skillful efficient clinicians (physicians), surgeons, drug manufactures, researchers with extensive practical training and appropriate communication skills in the field of indigenous medicine to serve the health care service.

Each study program will be equipped with the following specific objectives,

- To obtain knowledge and skills in prevention of diseases, promotion of health and also management and rehabilitation of diseases with using safe, quality and effective health care services by applying indigenous and scientific medical knowledge with professional skills, attitudes and mind-set.
- To exhibit professionalism, moral and ethical conduct and legal knowledge to their practice as well as analytical and conceptual skills leading to research.
- To develop skills required to perform as administrators, managers, policy makers, researchers and entrepreneurs in Indigenous sector.
- To communicate clearly about information, ideas, problems and solutions to appropriate audience and ready to foster and promote indigenous medical system in national and global level.

5. SUBJECT - SPECIFIC LEARNING OUTCOMES IN CORE AREAS

5.1 Knowledge

5.1.1 Subject/ Theoretical Knowledge

Subject/ theoretical knowledge of indigenous medicine demonstrates an advanced knowledge and understanding of the core aspects of each study programme and critically analyze data, make judgments and propose solutions to problems.

i. Graduates should be able to explain and demonstrate knowledge of;
   a. Philosophies and fundamental concepts upon which the indigenous medical system is based.
   b. Reading, writing, understanding and applying original language (Sanskrit/ Urdu and Arabic / Tamil) by which the particular indigenous medical science had been formulated or compiled.
   c. Understanding the interrelationship between individuals and their physical, social environment, season and lifestyle in manifestation of disease.
   d. Basic principles of body function, organization and concepts of body homeostasis from the perspective of indigenous medicine.

e. Basic structure and function of the body in modern science perspective at a level appropriate for an indigenous medical graduate to function as a practitioner and a scientist in today's world.
f. Aetiology, pathogenesis, signs and symptoms, investigations, differential diagnosis and diagnosis of psychosomatic disorders based on indigenous medical perspective and their possible correlations with modern medical perspective.
g. Behavioral sciences and relationships to medical anthropology, sociology and basic psychology.
h. Principles of public health, health education, disease prevention, amelioration of suffering and disability, rehabilitation and the care of the dying.
i. Paediatric, geriatric conditions and their management through practice of indigenous medical systems.
j. Describe commonly used medicinal plants in Ayurveda/ Unani/ Siddha and apply these herbs according to Ayurveda/ Unani/ Siddha theory, particularly with respect to selection of appropriate medicines, formulations and basic knowledge and skills in identifying raw and processed herbs, including their standardization.
k. Management of gynaecological problems and pregnancy, its complications and prevention through indigenous medical systems.
l. Identifying the surgical and para surgical conditions and diseases of eyes, ears, nose, oral cavity and head region and their management through indigenous medicine.
m. Sri Lankan traditional medicine (Sri Lankan Indigenous Medicine) and its specific therapeutic measures and preparations.
n. Promoting rejuvenating treatment and aphrodisiacs.
o. Infectious diseases, sexual transmitted diseases (STD), microbial infections and parasitic infestations.
p. Educational principles underlying learning and continuing medical education.
q. Ethics and legal aspects in relation to practice of indigenous medical system in Sri Lanka.

ii. Graduate should be able to apply their knowledge to;
a. Identify the medicinal plants and pharmaceutical preparation of herbal, mineral and animal origin drugs.
b. Identify the poisonous drugs, plants, animal stings and their management with indigenous medical systems.
c. Purification process of toxic materials including plant, minerals and metals used in indigenous medicine.
d. Limitations and applications of indigenous system of medicine.

5.1.2 Practical Knowledge and Application

The graduate should be able to:

a. Apply advances in Ayurveda/ Unani/ Siddha knowledge appropriately in clinical practice.
b. Obtain relevant information from a history which is patient-centred, socio-culturally and emotionally sensitive, structured and relevant from indigenous medical perspective and a modern medicine perspective where appropriate.
c. Select the appropriate and practical clinical skills to apply in a given situation.
d. Perform an accurate physical and mental state examination.
e. Interpret and integrate the patient's medical history and physical examination findings to arrive at an appropriate diagnosis or differential diagnosis.
f. Select the most appropriate and cost-effective diagnostic procedures.
g. Diagnosis and differentiate diseases/ disorders according to Ayurveda/ Unani/ Siddha principles and techniques and, formulate an appropriate Ayurveda/ Unani/ Siddha treatment plans.
h. Review and monitor the health of the patient and modify treatment accordingly.
i. Gain knowledge and skills related to scientific use of medicines and application of therapeutic measures for maintenance of health and alleviation of disease.
j. Develop specific treatment plans based on the individual signs and symptoms of the patient.
k. Give nutritional, dietary and preventive medicine advice in terms of Ayurveda/ Unani/ Siddha medical system.
l. Understand and acquire new knowledge from Ayurveda/ Unani/ Siddha clinical research.

5.2 Skills

The degree programs in an indigenous medicine shall develop subject specific skills with professional skills and general skills in order to achieve the graduate attributes.

5.2.1 Communication skills

Graduate should be competent in the following areas of communication.

a. Communicate effectively with patients, other health professionals, regulatory bodies, pharmaceutical suppliers, pharmaceutical manufacturers and the general public.
b. Ability to communicate clearly, considerately and sensitively, and interact appropriately with patients, families, other health professionals and the community.
c. Ability to counsel sensitively and effectively, and to provide information in a manner that ensures patients, families and communities, where appropriate, can be truly informed when consenting to any procedure.
d. Recognize and manage serious illness and refer as appropriate in common emergency situations.
e. Practise selective public health measures and to interpret health evidence in a critical and scientific manner.
f. Apply Ayurveda/ Unani/ Siddha medical terminologies and fundamental theories appropriately in clinical practice.
g. Use libraries and other information resources to pursue independent inquiry relating to health problems.
h. Proficiency in the English language required for their professional activities.
i. Listening and responding to other members of the health care team and coordinating with them.
j. Dealing with bereavement and grief.
k. Handling the concerns and complaints of the patients appropriately.
l. Identify key business issues and draw on appropriate professional resources to maintain sustainability of indigenous medicine.
m. Practice within regulatory/ ethical/ safety frameworks.
n. Willingness to continue to learn and update knowledge.

5.2.2 Teamwork and Leadership skills

Graduates should be able to work effectively as a team by;

a. Functioning within the limits of their responsibilities and capabilities.
b. Create an environment to express everybody's views and promote open and honest communication.
c. Recognizing and respecting the opinions of other team members.
d. Promoting collaborative work effectively including shared learning and small group discussions.

e. Encouraging team members to brainstorm and making decisions in consultation with other members of the health care team and patients.
f. Giving leadership to enable the team members to work efficiently in the university, in the hospital or in community.
g. Empowering leadership by assigning task to the team members.

5.2.3 Creativity and Problem Solving skills

Graduates should be able to develop creativity in areas where creativity is required.

a. Using indigenous medical knowledge and scientific knowledge, to arrive at a diagnostic hypothesis.
b. Planning the management according to indigenous medical knowledge in health promotive, disease preventive, curative and rehabilitative aspects.
c. Undertaking new drug development or value addition of existing drug in the indigenous medicine.
d. Identifying the clinical problems using the principles of Indigenous Medical System.
e. Application and formulating of the scientific methods by identify research problems/ hypothesis.
f. Using appropriate modern and traditional research methodologies to collect the data, analysing and interpreting them with appropriate statistic analytical methods.
g. Effectively disseminating the outcome/ new research findings to the scientific world and to the society.

5.2.4 Managerial and Entrepreneurship skills

In the field of indigenous medical systems, development of managerial and entrepreneurship is a vital component to face the modern world requirement. Therefore, the health care professionals in Ayurveda/ Unani/ Siddha need to be educated to develop the managerial and entrepreneurial skills as given below.

a. Take initiative, assume personal responsibility and demonstrate accountability and ability to instil entrepreneurship.
b. Understand governance, operational methods and management of the health care organizations such as government, non-governmental and private healthcare institutions.
c. Manage effective utilization of available resources optimally.
d. Offer the opportunity to train an entrepreneurial mind.
e. Possess managerial to improve effective communication essential in demonstrating sound health care professionalism.

f. Apply knowledge and skills to solve managerial problems in core functional areas of health care organizations.
g. Possess the skills required to develop strategies applicable for effective management of health care systems.
h. Assess critically and apply appropriately new concepts in healthcare delivery supporting new ventures.

5.2.5 Information Usage and Management skills

Graduates should be able to have following skills:

a. Ability to maintain systematic organization of health data for medical institutions, such as hospitals and clinics.
b. Develop health IT professional skills and informatics professional skills to run health care databases.
c. Process of collecting, storing, managing, and distributing information in the most optimal ways.
d. Organize, secured and analyse the important health information carefully.
e. Develop skills in statistical analysis, database management, biomedical sciences, and a range of other technical competencies related to health care management.
f. Ability to extract/ evaluate information from appropriate sources including electronic or digital information.
g. Apply informatics procedures and the proper technology in a health care setting.

5.2.6 Networking and Social Skills

Graduates should be able to:

a. Recognize and respect multi-cultural population, diversity, sensitivity, and equity in all aspects of social engagement for the betterment of patients and or community.
b. Coordinate and collaboratively work with individuals, institutions and organization locally or internationally.
c. Establish strong relationship in the global marketplace while respecting cultural differences.
d. Cultivate professional relationship by interacting with others in indigenous medical sector to improve mutual benefits.
e. Initiate collaborative programs with professional bodies that help to strengthen indigenous medical systems in Sri Lanka.
f. Ethical usage of social medias with appropriate content by preserving the individual's confidentiality and protecting their self-dignity.

g. Use the media professionally with adhering to the guidelines given by any regulating authority.

5.2.7 Adaptability and Flexibility

Graduates should have the ability to:

a. Adopt to any unexpected changes of work or work load in different situations and clinical settings.
b. Flexible to work with the patients and other health care team members such as nurses, paramedical staff, attendants, doctors, etc.
c. Adaptability and flexibility to modify a planned course of action in doing research adhering to the ethical principles.
d. Flexible to change the communication style used with patients or other members of the health care system to achieve best results.
e. Adapt to undertake long hours or change of the schedule time if a patient requires it at short notice.
f. Adapt to changes in the teaching and learning methods according to the needs or any unexpected changes of circumstances.
g. Adaptability and flexibility should be in optimum when the available resources are not sufficient.
h. Adaptability and flexibility in the professional development and appropriately plan the management of disease as well as organizations.

5.3 Attitudes

5.3.1 Attitudes, Values and Professionalism

The attitudes, values and the professionalism are becoming one of the main competencies that all medical graduates should develop during their degree programme. Graduates must possess all the professional skills and attributes necessary to function as an indigenous medical officer. Each study programme should promote and inculcate in graduating medical students a high level of professionalism in behavior as follows;

a. Graduates must adhere to the professional standards defined by the Sri Lanka Ayurveda Medical Council.
b. Graduates must be aware of the importance of the doctor patient relationship' in all aspects of patient care.
c. Adopt an empathic and holistic approach to patients and patient care with humane, compassionate and gentle.
d. Graduate should respect patients’ autonomy and consult with patients, relatives, guardians or care takers when making treatment plans.

e. Provide health care services to patients, families, and communities aimed at promoting health or preventing health issues.
f. Give prompt attention towards the emerging health issues in the society.
g. Develop and carry out patient management plans as per respective indigenous medical systems.
h. Develop and carry out patient management plans in emergency settings as per respective indigenous medical systems, if not possible referral to appropriate centres.
i. Counsel, reassure and educate patients and their families to empower them to participate in their care and enable shared decision-making.
j. Provide appropriate role modelling.
k. Be aware of and respect different cultures, values, views and beliefs.
l. Be aware of the use of other alternative medical practices, and be sympathetic and understanding if patients choose to use these practices.
m. Remain non-judgmental in all aspects of their work and avoid stigmatizing any category of patient according to cast, religion, region, gender, age, socioeconomic status, etc. and appreciating the multi-cultural and diverse nature of the Sri Lankan society.
n. Encourage and appreciate others work, engage in reflective practice, and have self-appraisal of their own work.
o. Graduates should be able to:
    i. Prioritize the care of ill patients.
    ii. Prioritize their time with regard to duties and responsibilities.
    iii. Maintain updated, complete and effective medical records of his/ her patients.
    iv. Ethical and legal principles should be applied in:
        - Preservation of confidentiality of the patient and the rights of patients.
        - Obtaining consent of the patient before any medical, surgical or research intervention.
        - fair dealing of the complaints about their own practice or behavior or that of colleagues.
    v. Updated knowledge in legal and professional responsibilities, issue of medical certificates, notification of infectious diseases, death and dying, drug prescribing, mental health, physical and sexual abuse of children and adults and abortion.
p. Outcomes for graduates' personal development include:
    i. Self-awareness and reflection in evaluating their performance and personal capability and recognizing the limits of their competence.
    ii. The ability to manage their learning with respect to continuing professional development.

iii. Recognizing the pressures on themselves and colleagues created by a busy professional career, and being aware of important issues in self-care, eg: stress reduction, avoidance of unhealthy practices such as alcohol misuse, substance abuse and self-medication.

q. Apply principles of epidemiological sciences to the identification of health problems, risk factors, treatment strategies, resources, and disease prevention/ health promotion efforts for patients and populations.
r. Apply principles of social-behavioral sciences to provision of patient care, relating the impact of psychosocial and cultural influences on health and diseases.
s. Contribute to the creation, dissemination, application, and translation of new health care knowledge and practices related to indigenous medicine.
t. Formulate a high-quality research question and hypothesis and employ appropriate research methodology, apply the ethical requirements in the research.
u. Demonstrate self-confidence that puts patients, families, and members of the health care team.
v. Provide empathetic care for all patients, including the economically less privileged and the differently-abled.
w. Accountability to patients, society, and the profession.

5.3.2 Vision for Life

Vision for life clearly identifies where one wants to be and develop long term goals accordingly. It recognizes the competencies that help to assume predetermined responsibilities.

Indigenous medical professionals as to provide effective and efficient services in development of physical, mental and spiritual wellbeing of mankind by acting as a member of health team at primary, secondary and tertiary levels of health promotion in a setting of national and international community.

Graduates should be able to;

a. Understand the value of human life and the dignity of the human being.
b. Acquire professional excellence and develop the necessary skills of healing through appropriate, effective and compassionate patient care.
c. Engage in the improvement of the community through health education and sound management, as well as advocacy in public health and health policy issues.
d. Promote medical research with emphasis on community-oriented projects and health related programs.
e. Use sound ethical, moral and scientific grounds for analyzing and resolving problems.
f. Have personal and professional development.
g. Inter professional collaboration.

5.3.3 Updating Self / Lifelong Learning

Medical knowledge, skills, and social requirements for patient care are quickly changing, thus, medical doctors are anticipated to be life-long learners to provide effective care for the patients. Characterizes lifelong learning as a "continuously supportive process which invigorates and empowers people to obtain all the knowledge, attitudes, and skills" they will require all through their lifetimes and apply them with confidence, creativity, and happiness.

Graduates should be able to;

h. Undertake further training and develop new skills within a controlled environment.
i. Identify the new developments in the area of study.
j. Recognize the need for independent learning and lifelong learning.
k. Have continuous professional development through, new innovations, creativity, workshops, problem-based discussions, brainstorming sessions, etc.

l. Be updated in the "current issues" with adequate medical knowledge and skills, and will be able to give best medical care to their patients.

Graduates must engage in the following lifelong learning strategies;

m. Self-directed learning (SDL) helps in medical education for the medical graduates to improve their skills and knowledge continuously.
n. Problem-based learning (PBL) and Team-based learning (TBL) are good learning methodologies for the lifelong learners to enhance the skills such as teamwork, communication, practical knowledge to real problems, critical thinking, attitudes, etc.
o. Use of peer group relationship system with distinctive care for learning from mentors for each group of students.
p. Mentor-mentee relationship from peer group and facilitators is vital and belief in working closely in every society.
q. E-learning is considered synonymous with online learning that is flexible and the graduates are responsible for choosing the pace of their own learning and need. In e-learning, it combined with e-appraisal that supports self-motivated learning, give a possibility of self-evaluation, reflection and identifying learning gaps, and promote lifelong learning.
r. Reciprocal teaching is an excellent thing to consider especially in outbreak investigation topic or any hands-on practical skills.
s. Portfolios may be useful for evaluating medical graduates' performance as well as programme improvement. Portfolios is a good strategy to cultivate lifelong learning skills by promoting self-learning.

6. TEACHING, LEARNING AND ASSESSMENT PROCESS

6.1 Commonly Used Student-Centered Teaching and Learning Methods

The undergraduate degree programme consists of pre-clinical, para-clinical and clinical components to give essential knowledge, understanding, clinical and practical skills and professional attitudes to prepare the undergraduates as professional indigenous medical doctors. The teaching and learning methods are continually evolving to meet the changing demands on graduates. As a consequence, the teaching and learning strategies must be evolved to achieve the respective learning outcomes of the subjects at appropriate levels. This cannot be accomplished through traditional teacher centered education system. The effective methods of teaching, learning and assessments methods should be implemented to enhance the graduate attributes via use of appropriate technologies and pedagogies. The student-centered teaching and learning strategies by adopting appropriate blended learning systems with modern technologies are compulsory to achieve the learning outcomes. Further, internship/ clinical appointments

play a vital role for students that should be appropriately designed with a view to develop highly competent graduates.

Following student-centered teaching and learning activities in indigenous medicine are suggested according to SLQF recommendations.

The teaching-learning methods may include:

- Lectures and tutorial discussions
- Peer assisted small group discussions
- Laboratory work
- Assignments
- Writing reports, seminars and presentations
- Study visits and industrial trainings.
- Online student presentations and group discussions
- Case based learning (CBL)
- Problems based learning (PBL)
- Simulation based learning (CBL)
- Social media and e learning
- Evidence based medicine
- Observational learning
- Team based learning
- Research project

6.2 Assessment Methods

Assessment is an integral part of the teaching and learning process in indigenous medical (Ayurveda/ Unani/ Siddha) curricula. It has the potential to have the most influence in directing students' energies and in determining their approach to learning. Therefore, it is pertinent that assessment instruction provided to students is of high quality.

The commonly used assessment methods that can be used to assess each of the SLQF learning outcomes.

No.	SLQF Learning Outcomes	Assessment methods
1	Subject/Theoretical Knowledge	Multiple Choice Questions, Structured Essay Questions, Essay Questions, Short Answer Questions, Assignments, Quizzes, Presentations, Viva voce (Online assessment methods also can be adopted wherever feasible)
2	Practical Knowledge and Application	Objective- Structured Clinical Examination (OSCE) Objective Structured Practical Examination (OSPE), Logbooks, Spot test, Workplace base assessments with a portfolio to document the results, long case, short case and viva - voce examinations
3	Communication	Objective Structured Clinical Examination (OSCE), Long case, short case, and workplace-based assessments with a portfolio to document the results, Observer ratings/grading of student presentations, Observer ratings/grading of small group learning activities.
4	Teamwork and Leadership	Workplace based assessment with a portfolio to document the results, Observer ratings/grading small group learning activities.
5	Creativity and Problem Solving	Scenario based assessment item from assessment given under SLQF learning outcomes 1 and 2 above, observer ratings/grading of project (including research) works /reports, Observer ratings/grading of student presentations, assignments (even without scenarios if appropriately worded), portfolio
6	Managerial and Entrepreneurship	Observer rating grading of project work, Assessments / Assignments, Scenario base assessments given SLQF learning outcomes and 1 and 2 above
7	Information Usage and Management	Portfolio, observer ratings/grading of project /research report, Assignments, Observer grading of the contribution to online forum discussions, Long case, Short case
8	Networking and Social Skills	Portfolio, observer ratings/ grading of project/research work, workplace-based Assignment with a portfolio to document the results especially in the community
9	Adaptability and Flexibility	Portfolio, observer rating / grading of project /research reports /work,
10	Attitudes, Values and Professionalism	Portfolio, observer rating / grading of project /research reports /work, workplace-based assignments with a portfolio to document the results, Objective Structured Clinical Examination (OSCE), Long case, Short case, observer rating/grading of small group learning activities / students' presentations
11	Vision for Life	Portfolio, Reflective writing Assignments, Observer rating/ grading of project (including elective project) reports
12	Updating Self / Lifelong Learning	Portfolio, Reflective writing assignments, Observer rating/ grading of project research reports

The above methods are not an exhaustive compilation rather; they represent the most commonly used for each SLQF learning outcome

The above methods carry distinct meaning only. If these methods are used in line with these meanings that the corresponding learning out comes would be achieved.

7. PERFORMANCE STANDARDS

The under graduate programme is aligned with Level 6 of Sri Lanka Qualification Framework. In order to achieve the SLQF Level 6, the degree program should be maintained the higher academic standard throughout the indigenous medical courses. The entry criteria for the BAMS, BUMS and BSMS degree courses which is determine by University Grants Commission shall be reviewed in consultation with the Ayurveda/ Unani/ Siddha indigenous system of medical faculties whenever necessary. According to UGC recommendation, qualified teacher student ratio should be 1:10 to conduct the degree programme. Further, the clinical training centers shall be provided with sufficient number of patients and patient range with optimum facilities to demonstrate students.

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Signature Page
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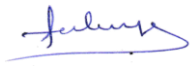
Prof. N. Fahamiya Professor in Ilmul Advia	University of Colombo	
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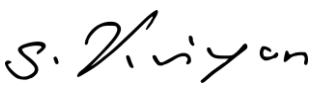
Dr. Viviyan Sathiyaseelan Senior lecturer & Head- Siddha Medicine Unit	University of Jaffna	

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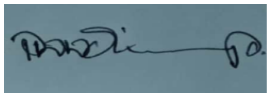

APPENDIX - 2

Glossary of commonly used assessment methods

Assignments: A task or pieces of work assigned to students to do at home where they are expected to construct a long answer utilizing literature resources and any other suitable resources.

Essay Questions: A question on a test or examination on a given topic requiring a written analysis or explanation, usually of a specified length and time. This kind of question is commonly used in summative exams with a well-designed marking scheme.

Logbook: A logbook is basically a record which evidences learning and skills. Also, provides a means for monitoring student learning, both for the student and for the instructor which is a feedback loop for the evaluation of learning activities.

Long case: Under the observation of examiners the candidate is asked to take complete history by interacting with the patient for 30 minutes followed by complete physical examination. Subsequently, the candidate is questioned by a panel of examiners and independent marks are awarded based on standard criteria.

Modified Essay Questions (MEQS): This type of essay question is structured in a way with a case scenario followed by a few questions. Further, questions can be asked by providing more information on the same case scenario. Likewise, even further information on the same case scenario can be given and asked questions. Different marks may be given for different questions based on the expected answer.

Multiple Choice Questions (MCQ): A multiple-choice question (MCQ) is composed of two parts: a stem that identifies the question or problem, and a set of alternatives or possible answers that contain a key that is the best answer to the question, and a number of distractors that are plausible but incorrect answers to the question. The respondent is asked to choose the correct or most appropriate answer from a list of choices (commonly five options). Each question carries the same marks.

Objective Structured Clinical Examination (OSCE): It is a practical, real-world approach to learning and assessment designed to test clinical knowledge and skills consisting of several

stations. The tasks in each OSCE station represent real-life clinical situations. Each examination station is designed to focus on an area of clinical competence. Every candidate experiences the same problem, and is asked to perform the same task, within the same timeframe. A candidate moves from one station to the other after the specified time duration while an examiner observes the candidate in each station. The OSCE content and scoring procedures are standardized using a checklist or a series of rating scales.

Objective Structured Practical Examination (OSPE):

This was adapted from the objective structured clinical examination (OSCE). The OSPE is a more objective, reliable, valid method for formative and summative assessment and minimizes subjective bias that can be utilized to evaluate students in practical assessment non-clinical in nature. It is composed of several "stations" in which candidates are expected to perform a variety of practical tasks (laboratory equipment, laboratory readings, and specimens of body parts.) within a specified time period against criteria formulated to the practical skill. The slideshow test with slides with various visual inputs accompanied by one or few short questions to be answered to each question on paper or electronically shortly also comes under OSPE and questions are marked as in a written examination.

Oral assessment (viva voce): A candidate answers questions in an interview with the examiner and independent marks are given by each examiner in the panel on agreed percentage. The student has to answer the question in such a way as to demonstrate sufficient knowledge of the subject to pass the exam. The questions may be pre-identified structured questions where each candidate is asked similar questions or traditional method where each candidate is asked different questions.

Portfolio: A portfolio is a compilation of materials that exemplifies beliefs, skills, qualifications, education, training and experiences and facilitates collection of assessment material as supportive evidence for the achievement of learning outcomes of the students. It is a collection of materials (related to examinations, narratives, feedbacks, case reports, publication, awards, etc.) with evidence (photograph, videos, etc.). And also, it encourages student learning reflection. While doing a portfolio, students may come to reflect and understand what they have and what they have not learned. The primary function of an assessment portfolio is to evidence what a student has learned and achieved against the intended learning outcomes. To assess the portfolio and determine the points or percentage grade that the student will receive, a rubric might be necessary to evaluate the student's work using various desired criteria and performance expectations.

Quizzes: A quiz is a quick and informal assessment tool of student knowledge. Basically, very short answers requiring one or few words. Quizzes are often used to briefly test a students' level of comprehension regarding course material, providing teachers with insights into student progress and any existing knowledge gaps and enhance students' critical thinking. Quizzes usually used during a teaching and learning activity or posted on the learning management system as pre-tests, continuous assessment and post-tests.

Observer ratings/grading: It is one who observes, especially one engaged to observe the exam in or close and exact observations while students make or engage in exams/ presentations or the examiner reads/ inspects the work submitted by a candidate. And the rating will be awarded on the basis of structured form.

Reflective writing assignments: This is a kind of learning process where the candidate is reflecting and narrates on a selected experience by reviewing the progress, reconsidering, revisiting and thinking about what they learnt. This Critical reflection is often assessed through a wide variety of tools, such as learning and reflective short books, reports, reflection papers, case studies, or narratives. Reflective writing assignments are evaluated on a designed evaluation sheet.

Short Answer Questions (SAQs): This can be used in examinations or as part of assessment tasks. Questions can be written to reveal a student's ability to describe, explain, reason, create, analyze, synthesis, and evaluate. And students are able to answer in a summary form in a paragraph. While evaluating or assessing the SAQs the evaluator should prepare the Simple Short Answer Questions Rubrics.

Short case: In this examination the candidate is given approximately 8-12 minutes to focus on history taking and/or physical examination. This exam normally consists of a panel of examiners to evaluate the examination. Normally the students are able to handle 4- 6 different cases and subsequently, the candidate is questioned by a panel of examiners and independent marks are awarded based on standard criteria.

Structured Essay Questions (SEQs): A structured essay question seeks for a structured answer from students regarding the topic that they have been taught. The questions are divided into subdivisions and they are either related to the case scenario or not. Different marks may be given for different questions based on the expected answer and the answers are marked by using the marking scheme.

Workplace-based assessment (WPBA): This refers to a group of assessment modalities which evaluates trainee's performance during the clinical laboratory or community settings. Learners can be assessed performing a wide variety of tasks, such as taking a history, performing a procedure, eliciting informed consent, counseling a patient, presenting a case to their supervisor, consigning findings to the chart, preparing orders, writing a referral or discharge letter, handing-over cases to colleagues. It can be used different types of evidence such as Direct Observation of Procedural Skills (DOPS), Mini-Clinical Evaluation Exercise (mini-CEX) and Case-based discussion (CbD) in the assessment. Observation of learner performance, written evidence, or evidence from discussions. It can be conducted on specific events or longitudinally aggregating multiple events.