

# **COMMONWEALTH OF LEARNING INITIATIVE TO EMPOWER MIDDLE LEVEL PERSONNEL THROUGH DISTANCE EDUCATION: AN ADVANCED CERTIFICATE PROGRAMME IN LABORATORY TECHNOLOGY AT THE OPEN UNIVERSITY OF SRI LANKA**

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## **Introduction and needs diagnosis**

The need, necessity and importance to train laboratory technicians to support programmes involving teaching, research, analysis, quality assurance, production and development in Sri Lanka has never been as acute as it is today. Laboratory Technicians, recruited with three passes at the General Certificate of Education (Advanced Level) Examination, (which is the school leaving certificate examination after 13 years of schooling in Sri Lanka) into most science based laboratories (whether in Universities, Research Institutes, Analytical Laboratories, Production Industries, Service Institutions, Schools, Colleges, etc.) have had hardly any experience or practice in doing practical work during their secondary education. Ever since the abolition of practical examinations at the GCE (Advanced Level) Examination in the early seventies, practical work in science subjects is given very low emphasis and importance in Sri Lankan secondary schools. Consequently, laboratory technicians have no theoretical or practical knowledge in laboratory practices, management and safety or in handling and maintaining instruments or in common laboratory techniques in Science and Technology.

University academics, research workers, development scientists, production managers and school teachers have to spend much time and effort in providing on the job training and supervision of laboratory technicians who work with them in support of programmes involving analysis, quality assurance, teaching, training and research. Opportunities that were available to train technicians in institutions abroad are hardly in existence today in a scenario of increasing overseas training costs on the one hand and a prolific increase in the number of technicians who need such training on the other hand. Current efforts to re-introduce science practicals as a compulsory component for the evaluation system in the secondary school curriculum in Sri Lanka would be seriously impaired due to the absence of trained laboratory technicians in schools. Laboratory technicians even in Universities, are quite frustrated due to the absence of adequate opportunities to advance their knowledge in laboratory skills through formal training. The Sri Lankan University Technical Officers Federation has for many decades been consistently demanding that the University Grants Commission make early provision for the training of laboratory technicians in Sri Lanka.

With the establishment of Affiliated University Colleges in the early nineties and the proposal to commence unconventional career oriented courses in such institutions, another attempt was made to commence a laboratory technicians training programme. A committee of experts that was appointed for the purpose formulated a general curriculum leading to a one year Certificate in Laboratory Technology in Science followed by a second year specialized curriculum leading to a Diploma in Laboratory Technology in specific fields such as Medicine, Engineering, Agriculture, Chemistry, Physics and Biology. The proposal also envisaged the possibility for Diplomates in Laboratory Technology to be admitted to a University to read for a third year leading to a Degree in Laboratory Technology. Although the University Grants Commission gave its fullest support to the proposal, which was very well formulated and showed much promise, and strongly encouraged its adoption by the University system, no institution was willing, ready or prepared to undertake this vital task.

The gradual abandonment of the concept of Affiliated University Colleges with the change of government in 1994 was also another contributory cause for the proposal to lay dormant with little prospect of resuscitation.

## **Commonwealth of Learning Initiative**

It was in such a distressing and depressing scenario that a silver lining emerged among the dark clouds :

the Commonwealth of Learning in furthering one of its original objectives of facilitating the sharing of distance study material among tertiary institutions within the British Commonwealth of Nations organized in May 1996 a regional workshop for South Asian Commonwealth Open Universities at the Indira Gandhi National Open University in New Delhi, India. The workshop was sponsored by the Commonwealth Secretariat. The five day workshop enabled the participants to go through and study distance study material produced by Sci. Tech. Diol., a private company in the UK the copyright of which had been procured by COL. Three academics from the disciplines of Biology, Chemistry and Physics within the Faculty of Natural Sciences of the Open University of Sri Lanka participated in this workshop, which enabled the available study material to be suitably modified where necessary and adopted for use in the Asian context. Delegates works in groups and developed an appropriate mechanism for the successful delivery of the material within the local context. The workshop recommended that the material as modified should be used, developed and offered a a one academic year Certificate Programme in Laboratory Technology.

The Sri Lankan participants also found that the curriculum was to a very large extent similar to that already recommended for adoption in the Affiliated University College System of Sri Lanka. On their recommendation, the Natural Sciences Faculty of the Open University of Sri Lanka pursued the initiative with much vigour and enthusiasm to enable the programme to be offered at an early date.

### **Advanced Certificate Programme in Laboratory Technology (ACLT)**

#### Objectives

The objectives of the one year Advanced Certificate Programme in Laboratory Technology that was inaugurated in October 1998 are

- (a) to familiarize students with the basic infrastructure available in science laboratories.
- (b) To train students in the operation and maintenance of scientific apparatus and instruments.
- (c) To enable students to develop skills of common laboratory techniques in Science and Technology.
- (d) To impart knowledge on the basis of organization, management, maintenance and safety methods suitable for laboratories.
- (e) To prepare students as able personnel in the functioning of laboratories.

#### Curriculum

The one academic year curriculum is being provided through the provision of three compulsory courses on

Laboratory Techniques in Chemistry  
Laboratory Techniques in Physics  
Laboratory Organization, Management and Safety

and a fourth course on either Laboratory Techniques in Biology for Biological Science students OR Workshop Practice for Engineering & Technology oriented Students. A continuing education course in Computer Studies also forms an obligatory part of the curriculum.

#### Course Delivery and Evaluation

Print Material, Day Schools and an extensive Practical Component lasting about 40 days will enable the students to obtain the necessary academic input for the programme. The student's progress is continuously monitored and assessed continuously throughout the programme by means of assignments and assignment tests (in theory and practicals) that will contribute 30% to the final overall mark, the balance 70% being contributed by a conventional final examination. Only those students who secure a minimum of 35% in the continuous assessment component of a course will be eligible to sit the final examination, in which only 40% will accrue from the theory papers while 60% will accrue from the practical examination.

#### Admission requirements

The minimum admission requirements are the possession of three passes at the GCE (Advanced Level) Examination or equivalent passes in Foundation Courses offered by the Open University of Sri Lanka. University Technical Officers from Sri Lankan Universities are however be exempted from the need to possess these minimum admission requirements.

The first offer of the 1998/99 programme that was inaugurated in October 1998 has been limited to University technical officers in recognition of their persistent requests to make such a programme

available on the one hand and in order that a serious deficiency in the Sri Lankan University system be satisfied at the earliest possible opportunity on the other hand. However, the Faculty intends to refine and restructure the programme on the basis of the valuable experience it will obtain through this initial offer. The Faculty will then be in a better position to enroll large numbers of students from amongst those employed in research and development laboratories, industrial and service institutions as well as school laboratories.

Those who successfully complete the Advanced Certificate of Laboratory Technology (whose academic level corresponds to that of the first year in a B.Sc. Degree programme) will be eligible thereafter to pursue a Diploma Programme in Laboratory Technology in a specialized form in their relevant chosen area such as Medicine, Engineering, Chemistry, Physics, Biology.

Unfortunately, the Open University of Sri Lanka will be able to pursue such an effort only if adequate funding and resources are available from external sources for such an endeavour. The Open University of Sri Lanka therefore looks forward to the support and sponsorship of organizations such as the Commonwealth of Learning to make such a desirable and much needed path feasible and possible.

### **Conclusion**

This new programme inaugurated and offered by the Open University of Sri Lanka is very significant since it has been made possible through the catalytic and facilitating role of the Commonwealth of Learning in enabling the exchange and adaptation of relevant study material and encouraging our Open University to undertake distance education programmes of this nature.

It is the second of the six programmes presently available in the Faculty of Natural Sciences that has enabled the use of the Philosophy of Open Learning and the Methodology of Distance Education to venture into hitherto uncharted areas of tertiary education in order to provide a unique and much wanted opportunity particularly to those employed at a middle level. Both the Advanced Certificate Programme in Laboratory Technology and the B.Sc. Degree Programme in Nursing (which commenced in 1994) are unique since they represent the very first programmes to produce trained laboratory technicians and nursing graduates respectively from any University Institution in Sri Lanka. None of these programmes would have become a reality if not for external funding and resources made available through the aegis of the Commonwealth of Learning in the case of the ACLT programme and the Athabasca University / Canada International Development Agency in the case of the B.Sc. (Nursing) Programme

The need for continued facilitating and supporting roles from external agencies cannot be over emphasized in the context of these glaring examples. Middle level personnel employed as laboratory technicians (as well as nurses) are being empowered through knowledge, technology and training appropriate to their requirements. Such empowerment is no doubt vital to enhance the scientific and technological base of Sri Lanka. Further support and assistance that will be forthcoming from international bodies such as the Commonwealth of Learning and other external sources will no doubt enable the Open University of Sri Lanka to provide further empowerment at a higher level such as through the planned Diploma Programme in Laboratory Technology (for which the curriculum is already available) and a Post-Graduate Degree programme in Nursing. In the current context of sparse financial resources, the Open University of Sri Lanka waits in hope for a positive offer of support and assistance from the wider international community.