

## **Report on ELTA-ELSE-Development Project**

**Department of Chemistry, University of Jaffna**

**Date of Site visit: 21 November 2018**

### **Overview**

The Department of Chemistry is in the Faculty of Science, University of Jaffna. Currently, 377 students are studying Chemistry as a subject in the BSc degree program. The student population comprises of all three ethnic groups, Tamils, Sinhalese and Muslims and the female students are little higher than the male students. From 12 permanent academic staff in the Department, 11 are PhD holders and one is currently pursuing postgraduate studies leading to PhD. In addition, a Temporary Lecturer, 13 Demonstrators, 2 Research Assistants, 6 Technical Officers and 8 Laboratory Attendants are assisting the academic program in the department.

The Department of Chemistry offers two degree programs, namely BSc Honours in Chemistry and BSc Honours in Applied Science in Chemistry. The Department also contributes to the BSc Degree program offered by the Faculty of Science.

The objective of the submitted proposal was to improve teaching and learning of chemistry related fields by the Department of Chemistry in collaboration with the English Language Teaching Centre (ELTC). To achieve this objective it has proposed to improve the learning ability of English since the medium of instruction is English. Indirect out comes of the proposal are

- a) to establish an English language skills lab
- b) to upgrade the existing laboratory facilities

Currently, the Department of Chemistry conducts some programs to improve socio-emotional skills of students and the students participate the faculty programs too.

At the meeting with the Vice Chancellor, the commitment for the sustainability of the proposed activity by the higher authority of the University of Jaffna was guaranteed.

It was also noticed that all stakeholders are aware of the activities proposed and involved in the proposal writing process.

The schedule of the site visit is in the Table 1.

Table 1. Site evaluation schedule

<b>Time</b>	<b>Event</b>	<b>People involved</b>
8.30 am – 9.00 am	Meeting with VC, Dean, HoD, OTS Director, Project Coordinator, Activity Coordinators, Academic staff of Dept. of Chemistry ( <b>with Tea</b> )	VC, Dean, HoD, OTS Director, Project Coordinator, Activity Coordinators, Academic staff of Dept. of Chemistry
9.00 am – 10.00 am	Meeting among the three reviewers	Review team
10.00 am - 11.30 am	Meeting students (Reviewers will have informal chat with students)	Students
11.30 am – 12.30 pm	Physical survey of the Department space	HoD Project Coordinator, Activity Coordinators, Any other relevant persons such as Non-Academic staff, Technical Officers etc.
12.30 pm – 1.30 pm	LUNCH	
1.30 pm – 3.00 pm	The proposed Project Coordinator will make a presentation at this meeting that will serve as the starting point of the discussion	HoDs, Academic staff (including Project Coordinator, Activity Coordinators, Team of proposal writers), Non-Academic staff, Technical Officers
3.00 pm – 4.00 pm	Final discussion among the review team	Review team

## **Comments and observations of the proposed activities**

### ***Activity 1      Improving English Language Proficiency of Students***

The first and second year students in the Department of Chemistry participate the English Language courses offered by the English Language Teaching Centre (ELTC) for the students in the Faculty of Science. It was evident that these courses are mostly teacher-centered and focuses on vocabulary and grammar; and hence less popular among students. In those courses students are evaluated through a number of continuous in-course assessments, primarily written examinations, and an end of course examination which involves speaking and writing components. Obtaining a pass in the English language course is compulsory for the award of degree. It is evident that these existing English Language courses do not significantly improve English language skills of the students to perform their educational activities at a satisfactory level, manage their day-to-day activities and pursue higher studies in Chemistry.

Hence the department of Chemistry is planning to establish a digital Language Laboratory by improving the existing physical facilities of the department and establishing a Gavel club. These are very good plans, especially using the Language Laboratory will improve the student's Technical knowhow as well. The review team observed the site and the plans that they are going to implement and suggested that this laboratory can be used for multy purpose activities (use for computational chemistry courses, etc.) if the number of computers and working stations are increased by a few number.

Preparing students for UTEL, IELTS and TOEFL examinations are very good initiatives for the students to practice English Language and improve their communication skills, as at present the only 3 students have sat for IELTS/TOEFL and non for UTEL.

The review team is in agreement with this activity and 3 sub activities with the suggested amendments.

### ***Activity 2      Enriching Learner Centered Teaching - Learning Process***

The existing teaching modes in the Department of Chemistry includes lectures, lecture demonstrations, discussion on submitted assignments and tutorials, practical sessions, industrial visits and training, library based seminars and research projects. Although the study program adopts a blended (teacher centered and learner centered) teaching learning strategy, digital technology has not yet been integrated into the academic program, due to limitations in resources

and lack of familiarity with the system. Hence, the proposed activity is focused on introducing elearning tools, such as Learning Management System (LMS), in teaching, learning and evaluation processes to improve the core academic mission. Utilization of LMS has gained widespread acceptance within the university system due to its unique advantages. LMS allows students to review materials they may lack or are unclear about; allows extra materials to be disseminated without affecting contact time with teachers; develops computer literacy; eases course management; and allows easy application of formative assessments.

The three activities proposed very well accepted. Implementation of LMS system in the department will lead to learner centered education system and all staff members and students should be trained to use the system. Introducing digital based course evaluation system will improve the efficiency of the evaluation process and this will lead to on time graduation of students. When this system is established in the early years and the staff is trained, the number of course units adopted LMS in teaching-learning process and evaluation can be more in subsequent years. The sustainability is assured in the proposal by monitoring the process and effectiveness by the Faculty Quality Assurance Cell and it is a commitment from the Faculty.

In the budget the digital language laboratory maintenance should be changed to system management and that should include all digital systems; LMS, Language Lab, MIS, etc..

### ***Activity 3      Strengthening Laboratory based Soft Skills of Students***

During the discussing with students and on observation it was witnessed that the Department of Chemistry is lacking advanced facilities that Chemistry students of other universities utilized. The continuous changes in the application of scientific principles for the advancement of science and technology require competent and skilled personnel who are capable of working in a process-centered environment.

Familiarizing with modern analytical techniques and strengthening laboratory based research skills will enhance the competencies of graduates to compete in the national and global job markets. The proposed activity is focused on motivating staff and students towards an active engagement in collaborative and interdisciplinary research.

The sub activities proposed are appropriate and the upgraded laboratory learning environment will facilitate learner-centered teaching and research. On-the-spot assessment strategies will improve the evaluation process and trained staff will maintain the laboratories and equipments well.

Collaborative, interdisciplinary research activities are proposed and they will enhance soft skills of students and scholarly interactions will improve the quality of research.

The baseline of all three sub activities are zero and implementation of these activities will improve the soft skills on the analytical tools of students. It is strongly recommended to engage students in vacation training program as an assignment and allocate a credit value for it.

Budget request for the activity is reasonable.

#### ***Activity 4      Augmenting Socio-emotional Skills of Students***

In the present world graduates, who do not hold the required socio-emotional skills, are unable to fit themselves in a proper employment. The Department has realized the poor socio-emotional skills of the graduates. Hence, this activity has been proposed to motivate the students to involve in Social Action Projects (SAPs), in order to acquire the required skills and significantly contribute to the national development. Further, to gain better employment opportunities for them. Revitalizing Chemical Society and Conducting Social Action Projects are the sub activities. It has been seen that the Department already has a Chemical Society with active committee and members. It is suggested that to enroll all students do chemistry as members of the society.

It was witnessed that the chemical society has conducted SAPs and plans to do some more. These programs can be conducted with the involvement of some other organizations as well. This will enhance the interaction between students and public, school children, etc.. It is encouraged the chemistry popularization among school children to get good students to the science streams. Some budgetary items in this activity can be transferred to the activity 2 (Photocopier, printer, Desktop PC and some furniture) and kept in the department office under a responsible staff member.

#### ***Activity 5      Enhancing Career Development of Graduates***

It has been seen that the students do not get proper and recent guidance to improve their career. The Department also has seen this as a weakness as they don't offer timely guidance on career opportunities to students, and thus, many prospective students are unable to enter into their dream jobs and higher studies. Therefore, this activity proposed career guidance workshops and career fairs to enhance the career prospects of the graduates.

It has seen that this activity is planned in collaboration with the Faculty Career Guidance cell. The stakeholder comments have clearly indicated that the graduates are lacking the skills in leadership qualities, English language proficiency, ICT skills, □Soft skills, □Problem solving skills and □time

management. This activity will give a good opportunity for students to improve these vital skills which are needed to get employment in the private and public sector. Further this will improve outside partnerships with the department. The number of students participating the workshops and career fairs can be increased and more students will be benefitted if this activity is conducted successfully. Budget is reasonable for the activity. The sustainability can be achieved as the Faculty has a Career Guidance cell and basic facilities can be obtained through this project. The review team is not in agreement with the proposed renovation of washrooms under this activity. Instead that money can be utilized for purchasing some needed equipments which are essential for chemistry research to the laboratory proposed under activity 3.

The review team assessed the conformity between the written proposal and the ground realities, and drawn the final judgment and marks are allocated accordingly.