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University Grants Commission

Accelerating Higher Education Expansion and Development (AHEAD)

Results Area Two:

Improve the Quality of Higher Education

Enriching Learning, Teaching, Assessment

and

English Language Skills Enhancement

Development Projects (ELTA-ELSE DPs)

Department of Chemistry,

University of Jaffna

2018

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DP Name: ELTA-ELSE (Department/Unit)

University: University of Jaffna

Faculty: Faculty of Science

Department: Department of Chemistry

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SFB/166/SP-1/01

ELTA-ELSE proposal at Department level
Department of Chemistry

Expression of interest for the ELTA-ELSE proposal at Department level was submitted on 30 May 2018.

The following members in our department are involved in the proposal writing

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Faculty Board Approval is solicited to submit the proposal.

Thank you

sgd

Dr. P. Abiman

[Head / Dept. of chemistry]

This document was approved by the special faculty board held on 29/08/2018.

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3. Background

The Department of Chemistry is an academic entity of the Faculty of Science, University of Jaffna. At present, 377 students are offering Chemistry as a subject in the BSc degree program. The student population comprises of all three ethnic groups, namely Tamils, Sinhalese and Muslims; and female: male student ratio is 1.6: 1 (Appendix 1: Table 1.1). There are 12 permanent academic staff in the Department and 11 of them are PhD holders and one staff member is currently pursuing postgraduate studies leading to PhD (Appendix 1: Table 1.4). In addition, a Temporary Lecturer, 13 Demonstrators, 2 Research Assistants, 6 Technical Officers and 8 Laboratory Attendants are assisting the academic program.

The Department of Chemistry offers two degree programs, namely BSc Honours in Chemistry and BSc Honours in Applied Science in Chemistry. Also, the Department contributes to the BSc General Degree program offered by the Faculty of Science. Students are selected for the BSc Honours Degree in Chemistry at the end of second year based on their performance in the first two years. At the end of third year, BSc General Degree students are selected based on performance and given the option of following courses for an additional year with special emphasis on industry-related courses leading to a BSc Honours in Applied Science Degree in Chemistry in place of a BSc General Degree. However, the study program could not develop effective university–industry linkages and adequate research facilities due to the prevailed unsettled conditions in the region for more than three decades; and thus, contribution to the national development is obscured.

Current student enrolment by year and gender (Table 1.1), Undergraduate course units and medium of instruction (Table 1.2), Graduate employment experience – most recent year (Table 1.3), Qualifications of academic staff (Table 1.4) and Physical resources (Table 1.5) of the Department are given in Appendix 1.

Existing activities to promote socio-emotional skills

Presently, the Faculty of Science promotes socio-emotional skills of students through the following activities:

The Science Students' Union organizes a week long 'Science Week' program annually. This annual event enables to develop qualities, such as team work, leadership, adoptability, flexibility, attitudes and values among students; moreover, it provides a platform for students to showcase their skills, such as communication, creativity, etc.

Active citizenship program, initiated with the assistance of British Council, trains first year students and develops their interpersonal skills.

Sinhala language classes for Tamil students and Tamil language classes for Sinhala students have been conducted to improve ethnic cohesion among the students from different ethnicities.

Since 2014, with the financial boost from the previous World Bank project (HETC-QIG), career fairs for students have been organized to enhance career prospects of our undergraduates. Unfortunately, a very few Chemistry related industries and institutions have been approached in this regard so far; hence, their participation is very poor.

'*Tech Talks*' are delivered by industrialists; and workshops to improve the managerial skills of students are conducted.

Faculty University-Business Linkage (FUBL) Cell encourages students to participate in competitions by submitting business proposals. Recently, three students have won UBL awards for their research project reports.

In addition, the Department of Chemistry undertakes the following activities to promote socio-emotional skills of students:

Students are taken on industrial visits regularly to expose them to the working environment in industries and understand their requirements.

Students pursuing BSc Honours Degree program in Chemistry carryout research projects individually under the supervision of academic staff for a period of 20 weeks as part of their undergraduate education. This course unit is expected to enrich laboratory based practical skills, critical thinking, problem solving skills, information usage and

management, communication and networking skills of students. However, poor laboratory learning environment hinders active and innovative research progress.

Students pursuing BSc Honours in Applied Science Degree in Chemistry undergo industrial training for a period of 4-6 months as part of their undergraduate education. This training exposes our students to the world of work and improves their socio-emotional skills.

Chemical Society, a students' society, organizes popular talks, quiz competitions and workshops for school students; trains students for island wide interuniversity debate competitions; publishes '*Chem Soc*' magazine/newsletters; and involves in fund raising activities.

Existing activities to promote English language skills.

The Faculty of Science, with the assistance of the English Language Teaching Centre (ELTC) of the University of Jaffna, offers English Language course to all first and second year students with the aim of improving their speaking, writing and reading skills in English language. At present, this course is mostly teacher-centered and focuses on vocabulary and grammar; and hence less popular among students. Further, students are evaluated through a number of continuous in-course assessments, primarily written examinations, and an end of course examination which incorporates speaking and writing components. Obtaining a pass grade in the English language course is compulsory for the award of degree.

It is widely observed that the existing English language course does not significantly improve English language skills of our students to perform their educational activities at a satisfactory level and manage their day-to-day activities (Tables 4.4.2 & 4.4.3).

4. Activity Plan

4.1 Proposed activities / sub-activities

Table 4 shows the proposed activities, corresponding sub-activities for each activity, brief description of each activity/sub-activity and rationale for each activity.

Table 4: Rationale for activities

Activity and Sub-activity		Description of activity/sub-activity	Rationale
1. Improving English language proficiency of students	1.1 Preparing students for UTEL examinations	A digital language laboratory will be established by improving the existing physical facilities and procuring necessary equipment, furniture and learning materials for UTEL examinations. This will create an appropriate learning environment for the students to actively participate in English language learning activities to develop their content schema and language skills of writing, reading, listening and speaking under the guidance of academic staff. It will further facilitate independent learning.	The English proficiency is a vital communication skill expected from a present-day graduate. Also, a significant upgrading in English language skills of students is compulsory during their undergraduate education as the medium of instruction is English in the study program. Though the Faculty of Science currently offers English language course in the first and second years to help students in the transition to English medium instruction, it is not adequate. Poor English language skills of students
	1.2 Establishing a Gavel club		
	1.3 Assisting students sitting for IELTS/TOEFL examinations		

		A Gavel Club will be established with the active participation of Level 3 General and Special degree students after a training program on Speech Craft. This will be a self-sustained program as the senior students will train the next batch under the supervision of the academic staff. In addition, the Gavel club will focus on activities, such as dialogues, debate, poster, oral, and drama competitions, e-newsletters etc. The above activities will help the students to achieve UTEL Band 6. A section for TOEFL/IELTS preparation with the required learning materials will be made available in the digital language laboratory for those who are planning to sit the above mentioned competitive examinations.	have resulted in low performance at the examinations and loss of postgraduate studentship and employment opportunities. Therefore, it is proposed to support the existing English language course and prepare students for UTEL examinations by employing a more effective Learner Centered Teaching (LCT) approach and engaging students in interactive learning activities. Moreover, providing assistance to students sitting for the IELTS and TOEFL examinations will help them to attain the standards required for overseas postgraduate admission and employment.
2. Enriching learner centered teaching-	2.1 Training staff and students on digital-based	Initially, a series of workshops will be organized for teaching staff and students	In teacher centered education, the teacher retains the full control of the

learning process	teaching-learning strategies 2.2 Introducing digital-based teaching-learning process 2.3 Introducing digital-based course evaluation	on the digital-based teaching-learning strategies. The workshops will ensure effective use of the LMS. Subsequently, activities and resources which would lead to development and deployment of online course contents and more widespread adoption of the LMS in teaching learning and evaluation processes will be introduced. In addition, temporary staff (under supervision) will be trained to add and improve online course contents; and useable electronic contents will be produced through student projects.	classroom. But in learner-centered education, both students and teachers share the focus of education. The existing teaching modes in the Department of Chemistry includes lecture, lecture demonstration, discussion on submitted assignments and tutorials, practical session, industrial visit and training, library based seminar and research project. 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 will focus on introducing e-learning 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.
3. Strengthening laboratory based soft skills of students	3.1 Upgrading laboratory environment 3.2 Training for staff and students 3.3 Encouraging collaborative, interdisciplinary research	The laboratory learning environment will be upgraded appropriately so that learner-centered teaching and research could be practiced; and on-the-spot assessment strategies will be used to evaluate the analytical skills of students. The laboratory staff and academics will be trained on advanced analytical	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. As such, familiarizing with modern

		techniques and operation and maintenance of the available research equipment. A series of workshops will be conducted for students to impart knowledge and skills on information literacy, research ethics, research methodology, conference presentation, manuscript preparation, reference software, etc. In addition, collaborative, interdisciplinary research activities will be encouraged as they enhance soft skills of students and result in scholarly interactions and quality research.	analytical techniques and strengthening laboratory based research skills will enhance the competencies of graduates to compete in the national and global job markets. In this regard, the proposed activity will focus on motivating staff and students towards an active engagement in collaborative and interdisciplinary research.
4. Augmenting socio-emotional skills of students	4.1 Revitalizing Chemical Society 4.2 Conducting Social Action Projects (SAPs)	This activity will be performed in collaboration with the students' Chemical Society. The office of the Chemical Society, located within the Department of Chemistry, will be organized by improving the existing infrastructure	In the present era, since artificial Intelligence and robotics play a major role in the global employment market, the graduates, who do not hold the required socio-emotional skills, are unable to fit themselves in a proper job. In this regard, poor socio-

		and procuring necessary office equipment and furniture so that its activities towards augmenting socio-emotional skills, such as communication skills, critical thinking, problem solving skills, creativity, teamwork capability, self-management, sociability, work ethics, managerial and entrepreneurship, adaptability and flexibility, attitudes, values and professionalism, vision for life and updating self / life-long learning, of students could be stimulated. Furthermore, the society will be encouraged to carryout various SAPs, such as educational programs for school students, public awareness creation on burning issues, and community based activities.	emotional skills of our graduates have been highlighted by the prospective employers. Hence, it is necessary to motivate our students to involve in SAPs, so that they will acquire the required skills and significantly contribute to the national development. Further, this will provide better employment opportunities for them.
5. Enhancing career development of	5.1 Conducting career guidance workshops	This activity will be performed in collaboration with the Faculty Career	Career development is the process through which an individual's work

graduates	5.2 Organizing career fairs	Guidance Cell. A series of workshops will be conducted to educate students on setting up career goals, developing the required personality and skills, creating awareness on suitable career opportunities and developing appropriate career pathways by sharing professional knowledge and expertise. Annual career fairs will be organized to enable students, academia and industrialists to network and expand students' horizons in facilitating industry oriented collaborative research projects and building career paths. These sub activities would significantly impact on strengthening the curricula of the study programs offered by the Department of Chemistry and the performance of our graduates.	identity emerges. Many people seek out assistance from career development professionals only when they are trying to choose a career for the first time, or perhaps when they are going through a transition. Unfortunately, the Department doesn't offer timely guidance on career opportunities to students, and thus, many prospective students are unable to enter into their dream jobs. Therefore, this activity proposes career guidance workshops and career fairs to enhance the career prospects of the graduates.

4.2 Activities and plan to achieve the KPIs

The Table 5a shows the KPIs for each activity and sub-activity. The baseline value and intended targets to be achieved for each KPI at the end of years 1, 2 and 3 are given in Table 5b.

Table 5a: Activities and plan to achieve KPIs

Activity	**Sub-activity**	**KPIs**	
		Intermediate outcome indicators	**Outcome indicators**
1. Improving English language proficiency of students	1.1 Preparing students for UTEL examinations	**Number of students sitting the UTEL**	**Number of students showing an improved UTEL band score**
	1.2 Establishing a Gavel club	Number of activities conducted by the Gavel club	
	1.3 Assisting students sitting for IELTS/TOEFL examinations	Number of students sitting for IELTS/TOEFL examinations	
2. Enriching learner centered teaching-learning process	2.1 Training staff and students on digital-based teaching-learning strategies	**Number of academics trained in digital-based teaching, learning, and assessment**	**Number of academics practicing digital-based teaching, learning, and assessment**
	2.2 Introducing digital-based teaching-learning process	Number of course units adopted LMS in teaching-learning process	
	2.3 Introducing digital-based course evaluation	Number of course units adopted LMS in evaluation	

3. Strengthening laboratory based soft skills of students	3.1 Upgrading laboratory environment	Number of on-the-spot assessments conducted	Number of staff and/or students developed competency
	3.2 Training for staff and students	Number of workshops conducted	
	3.3 Encouraging collaborative, interdisciplinary research	Number of industry/institution oriented collaborative research projects	
4. Augmenting socio-emotional skills of students	4.1 Revitalizing Chemical Society	Number of student members enrolled	Percentage of student members benefiting from SAPs.
	4.2 Conducting Social Action Projects (SAPs)	Number of SAPs completed	
5. Enhancing career development of graduates	5.1 Conducting career guidance workshops	**Number of students attending career guidance workshops**	**Number of students obtaining jobs through career fairs**
	5.2 Organizing career fairs	**Number of students participating in career fairs**	

Table 5b: Key Performance Indicators (KPIs)

Activity/ Sub-activity	*Indicator*	*Baseline**	*End of Year 1*	*End of Year 2*	*End of Year 3*	*Methods **
Activity 1	**Outcome Indicator**					
	Number of students showing an improved UTEL band score	N/A	50	100	150	Examination records
Sub-Activities	**Intermediate Outcome Indicators**					
1.1	**Number of students sitting the UTEL**	N/A	130	200	250	Faculty records; Examination records
1.2	Number of activities conducted by the Gavel club	N/A	3	5	8	Gavel club records
1.3	Number of students sitting for IELTS/TOEFL examinations	3	5	7	10	Survey
Activity 2	**Outcome Indicator**					
	Number of academics practicing digital-based teaching, learning, and assessment	0	3	6	10	Network administrator records
Sub-Activities	**Intermediate Outcome Indicators**					
2.1	**Number of academics trained in digital-based teaching, learning, and assessment**	2	8	15	20	Attendance sheets of the training sessions

2.2	Number of course units adopted LMS in teaching-learning process	0	3	6	10	Network administrator records; Student feedback
2.3	Number of course units adopted LMS in evaluation	0	3	6	10	Network administrator records; Student feedback
Activity 3	**Outcome Indicator**					
	Number of staff and/or students developed competency	8	15	30	> 60	Self-evaluation reports; Peer observation
Sub-Activities	**Intermediate Outcome Indicators**					
3.1	Number of on-the-spot assessments conducted	0	1	3	3	Department records
3.2	Number of workshops conducted	0	2	3	3	Department records
3.3	Number of industry/institution oriented collaborative research projects	0	1	2	3	Project proposals; Collaboration agreements
Activity 4	**Outcome Indicator**					
	Percentage of student members benefiting from SAPs.	5 %	10 %	25 %	> 60 %	Feedback from beneficiaries
Sub-Activities	**Intermediate Outcome Indicators**					
4.1	Number of student members enrolled	100	90	120	160	Chemical Society membership records

4.2	Number of SAPs completed	0	3	5	5	SAP completion reports
Activity 5	**Outcome Indicators**					
	Number of students obtaining jobs through career fairs	N/A	3	5	7	Survey
Sub-Activities	**Intermediate Outcome Indicators**					
5.1	**Number of students attending career guidance workshops**	5	15	25	40	Attendance Sheets; Workshop completion reports
5.2	**Number of students participating in career fairs**	N/A	5	15	24	Feedback from participants

4.3 Time schedule

Table 6 shows the detailed time schedule for the implementation of each sub-activity.

Table 6: Time schedule

Activity	Sub-Activity	Year 1				Year 2				Year 3			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Activity 1	1.1												
	1.2												
	1.3												
Activity 2	2.1												
	2.2												
	2.3												
Activity 3	3.1												
	3.2												
	3.3												
Activity 4	4.1												
	4.2												
Activity 5	5.1												
	5.2												

4.4 Stakeholders

The proposal writing team had discussions with the academics, non-academics, students and Chemical Society during the proposal writing process (Appendix 2). The proposed activities were identified based on the SWOT analysis on the survey conducted among the academic staff, undergraduates, recent graduates and government and private institutions. For this purpose, three questionnaires and a focus group discussion were administered to get their concerns and recommendations regarding the current study program (Appendix 2). The survey results for selected questions in the questionnaires and outcomes of the focus group discussion are summarized below.

The survey to assess the quality of the current degree programs offered by the Department of Chemistry, University of Jaffna, was conducted by distributing questionnaires among a sample of currently registered undergraduates, recent graduates, academic staff of the Department of Chemistry, and conducting a focus group discussion with stakeholders, including government and private institutions. The main objective of these surveys was to evaluate the level of satisfaction on English language proficiency, student centered teaching, learning and assessment methods and interpersonal skills development activities currently practiced in the study program and to obtain suggestions and recommendations towards enhancing the employability, English language and socio-emotional skills of the graduates and university-industry linkage. Each group was given a separate questionnaire, and all the data are available for further reference. The responses are summarized below.

Survey 01: Current undergraduates of the Department of Chemistry

There were 46 responses for the survey with 35 females (76%) and 11 males (24%). Insufficient student centered teaching-learning activities (87%) and English language classes (76%), poor laboratory learning environment (72%) and university-industry linkage (70%) have been identified as major weaknesses in the present study program. Responses regarding the recommended activities and experiences to be included in the study program are summarized in Table 4.4.1. More than 80% of the students have suggested incorporating LMS based teaching, learning and assessment strategies, collaborative research work, interpersonal skills development activities and career guidance workshops into the study program.

Table 4.4.1: Recommended Activities and Experiences

Activities and Experiences	Recommended by
English language proficiency	
Computer assisted teaching and learning	76 %
Forming a Gavel club	78 %
Conducting competitions	76 %
University-Industry linkage	
Collaborative research	87 %
Industrial training	74 %
Career guidance workshops	80 %
Student centered teaching learning and assessment process	
LMS based teaching, learning and assessment	89 %
Facilitating small group discussions	59 %
Self-learning facilities	72 %
Library collections	41 %
Socio-emotional skills development	
Self-management	39 %
Interpersonal skills	83 %
Social awareness	37 %
Responsible decision making	43 %

Survey 02: Recent graduates from the Department of Chemistry

There were 20 responses received for this survey. The graduate employment experience was analyzed by considering the time taken to find the first job after graduation. About 75% of the graduates found at least a temporary employment within a short period, and their average starting salary ranges between LKR 20,000 and LKR 40,000. Of the employed graduates, 53% are attached to private sector while the rest are working at public institutions. Notably, most of our graduates are working in the education (40%) and research (47%) sectors and holding temporary positions (80%).

When their opinion about the degree obtained from the Faculty of Science was asked, nearly 25% of the graduates mentioned that English language proficiency was a constraint in pursuing the degree. Further, it was noted that learner centered teaching, learning and assessment strategies and interpersonal skills development of the students need to be addressed to improve the quality of the study program. Table 4.4.2 represents the reflections of recent graduates on the current study program.

Table 4.4.2: Reflections on the current study program

Reflections on the current study program	Disagree	Neutral	Agree
Existing curriculum			
Relevant to career aspirations	30%	35%	30%
Sufficient focus on practical aspects	25%	20%	55%
Teaching, learning, and assessment process			
Student centered	30%	35%	35%
ICAs are conducted on time	20%	45%	35%
Interpersonal skills development			
Time management	30%	35%	35%
Critical thinking and problem solving	20%	35%	45%
Work ethics	25%	35%	40%
Flexibility	40%	20%	40%
Team work	25%	40%	35%
Leadership	35%	15%	50%
ICT skills	40%	25%	35%
English Language proficiency			
Writing	20%	35%	45%
Reading	30%	25%	45%
Speaking	25%	35%	40%
Learning environment			
Lecture halls	25%	35%	50%
Laboratories	35%	30%	35%
Library	25%	50%	25%
Internet Facilities	45%	25%	30%

Survey 03: Academic staff of the Department of Chemistry

Nine academic staff members of the Department of Chemistry responded to the questionnaire that was distributed. Among them 67% are males and 33% are females. All the responses obtained are summarized in Table 4.4.3.

Table 4.4.3: Summary of the responses obtained from the academic staff

Reflections	Excellent	Very Good	Good	Average	Poor
English language skills of students					
At the entrance level					
Writing			33%	67%	
Reading			42%	42%	14%
Speaking				38%	63%
At the exit level (Applied Science Degree)					
Writing		14%	43%	43%	
Reading		28%	28%	43%	
Speaking		14%	88%		
At the exit level (Special Degree)					
Writing		25%	50%	50%	
Reading		63%	25%	13%	
Speaking			33%	67%	
Analytical skills of students					
At the exit level (Applied Science Degree)		14%	57%	28%	
At the exit level (Special Degree)		50%	25%	25%	
Problem solving ability of students					
At the exit level (Applied Science Degree)		22%	56%	11%	
At the exit level (Special Degree)		14%	57%	28%	
Knowledge on scientific writing					
At the exit level (Applied Science Degree)			33%	50%	17%
At the exit level (Special Degree)		29%	29%	29%	14%
Computer literacy of students					
At the exit level (Applied Science Degree)			71%	29%	
At the exit level (Special Degree)			63%	38%	
Interpersonal skills of students					
Ability to work in a team	13%	38%	38%	13%	
Professional mannerism		38%	38%	25%	
Social skills		25%	50%	25%	
Ability to keep commitments/meet deadlines		13%	63%	25%	
Class attendance		11%	33%	56%	

Most of the academic staff members believe that English language skills at the entry level of students are not adequate. Moreover, computer literacy, knowledge on scientific writing, problem solving ability and interpersonal skills of the undergraduates are not sufficient and need to be improved.

Survey 04: Focus Group Discussion with stakeholders

A discussion with stakeholders including government and private institutions, organized by the UBL Cell of the Faculty of Science, was held on July 6, 2018. During the discussion, it was pointed out that most of our graduates do not possess the following skills generally expected by the potential employers:

- Leadership qualities
- English language proficiency
- ICT skills
- Soft skills
- Problem solving skills
- Time management

Final Observations

According to the survey results, majority of the respondents have ascertained that the existing study program maintains proper standards at a certain level. However, most respondents have suggested improving English language skills, soft skills, and IT skills of our undergraduates.

4.5 Budget justification

The proposed budget for each activity is given in the Table 7. Detailed budget breakdowns for resources required to implement the proposed activities and sub-activities are given in the Appendix 3.

Table 7: Proposed Budget

Activity	Estimated Cost (x 1000 LKR)					
	Goods	Works	Services		OVAA	Total
			Con.	Non. Con.		
1. Improving English language proficiency of students	2,896	420	0	820	360	4,496
2. Enriching learner centered teaching-learning process	1,870	0	0	100	270	2,240
3. Strengthening laboratory based soft skills of students	1,050	1,702	0	755	90	3,597
4. Augmenting socio-emotional skills of students	695	25	0	250	690	1,660
5. Enhancing career development of graduates	1,000	1,500	0	410	90	3,000
Total	**7,511**	**3,647**	**0**	**2,335**	**1,500**	**14,993**

Justification for the proposed budget is given below:

Activity 1: The proposed digital language laboratory is required for students to learn the English language effectively by practicing their listening, speaking, writing and reading skills, so that they will possess the required English language competency at graduation. CCTV monitoring will reduce the misuse of resources. Further, availability of the UTEL, IELTS and TOEFL learning materials will encourage the students towards independent learning and gaining confidence to sit for such examinations. The proposed activities of the Gavel club will enhance not only English language proficiency but also socio-emotional skills (Activity 4) of students.

Activity 2: Enhancement of digital infrastructure of the digital language laboratory and LMS utilization for teaching, learning and assessment are required to transform the present status of the Department of Chemistry to suit the requirements of the OBE-LCT. Further, conducting workshops for the staff and students on e-content development (using relevant software) and use of LMS will be required to implement and sustain the proposed digital-based teaching, learning and assessment strategies successfully.

Activity 3: The laboratories need to be upgraded (through appropriate infrastructure development of existing facilities) to ensure proper implementation of OBE-LCT. Additionally, staff training on advanced analytical techniques and workshops for students imparting knowledge and skills are required to enrich their laboratory based soft skills. Students-staff mobility is an essential component of collaborative research that would expose students and staff to advanced analytical techniques.

Activity 4: The office of students' Chemical Society needs to be well-equipped for its' smooth functioning and carrying out the proposed SAPs efficiently. The SAPs will improve the employability of students by uplifting their socio-emotional skills and building their character.

Activity 5: Career guidance workshops are required to educate the students on career prospects. Career fairs will expose our undergraduates to present day employment opportunities. Upgrading washroom facilities will be required to improve the welfare of students and staff.

4.6 Sustainability

Activity 1:

The digital language laboratory to be established will be maintained by the Department of Chemistry by utilizing its annual fund allocation on completion of the project. Preparing students for UTEL examinations along with computer assisted self-learning of students will be encouraged and guided by the academic staff of Department of Chemistry and ELTC. The activities of Gavel club will be self-sustained as the senior students will train the next batch of students under the supervision of the academic staff. The learning resources for UTEL, IELTS, and TOEFL will be regularly updated by Department of Chemistry.

Activity 2:

Awareness and training workshops on LMS and online course content development tools will ensure the production of useable electronic course contents. Temporary staff will be trained to add and improve online course contents under the supervision of the respective teaching staff. Courses with components of digital-based teaching, learning, and assessment will be offered on a regular basis, and their effectiveness will be monitored by Faculty Quality Assurance Cell.

Activity 3:

The laboratories to be upgraded will be maintained by the laboratory staff of the Department of Chemistry; and the training on advanced analytical techniques will ensure quality research. In addition, regular research related workshops will be sustained by utilizing the internal human resources. Head of the Department with the assistance of academic staff will ensure the sustainability of interdisciplinary research activities by collaborating with national and/or international institutions.

Activity 4:

The office bearers of the students' Chemical Society, elected annually, will maintain the office of Chemical Society. Developing Socio-emotional skills among students will be sustained through the regular SAPS conducted in collaboration with the Chemical Society by raising funds from the alumni and well-wishers.

Activity 5:

The career guidance workshops and career fairs will be sustained through the Faculty career guidance cell (FCGC) and FCGC coordinator will co-ordinate these proposed activities on a regular basis.

Appendix 1

Table 1.1: Current student enrolment by year and gender

Faculty of Science	Department of Chemistry	Level 1		Level 2		Level 3		Level 4	
		M	**F**	**M**	**F**	**M**	**F**	**M**	**F**
	General Degree	59	84	42	74	32	43	-	-
	Special Degree					5	14	7	17
	Total	**59**	**84**	**42**	**74**	**37**	**57**	**7**	**17**

Table 1.2: Undergraduate course units and medium of instruction

Year	Total No. of Course Units offered by the Department	Medium of instruction			
		Only Sinhala	Only English	Only Tamil	Offered in more than one language
Level 1	05		05		
Level 2	05		05		
Level 3	06		06		
Level 4	11		11		

Table 1.3: Graduate employment experience in 2017

20 students graduated in 2017			
Employment experience	**Male**	**Female**	**Both**
Average time taken to get first job after graduation (months)	08	06	09
Number of students employed in the private sector	03	05	08
Number of students employed in the public sector	04	03	07
Total number of students who graduated in the given year	8	12	20

Table 1.4: Qualifications of academic staff

Position	PhD		MPhil/ Masters		Bachelors	
	M	**F**	**M**	**F**	**M**	**F**
Professors / Associate Professors	01	01				
Senior Lecturers	07	02		01		
Lecturer (Temporary)						01
Research Assistants					01	01
Demonstrators					01	12

Table 1.5: Physical Resource

Department/ Unit	Library		Computer Units	Computers for staff use	Computers for student use	Classrooms with multimedia		Laboratories		Others	
	No.	Area (sq. ft)				Description	Area (sq. ft)	Description	Area (sq. ft)	Description	Area (sq. ft)
Chemistry	01	1904	-	12	-	Large lecture hall	2476	**Teaching labs**		23 Staff rooms	3347
								1st year	4208	2 Demonstrator's rooms	896
								2nd year	4594	Proposed digital lab	398
						Small lecture hall	1937	3rd year	4364	Staff common room	353
								4th year	3340	Office	375
								Phy. Chem.	4544	Head's room	474
										3 Tutorial rooms	1174
								Research labs		Chemical society's office	376
								Inorganic	1920		
								Organic	1592	Toilets (3 floors)	1808
								Physical	1345	Reception room	138
								Spectroscopy	946		
								Chemical store	2213		
								Gas plant	600		

Appendix 2

2.1 Minutes of the Department of Chemistry Meeting No: 55-1 (Academic Staff)

17/08/2018	Minutes of the Department of Chemistry	Meeting No: 55
Office of the Head	Faculty of Science, University of Jaffna	August/2018

Attendance		
	Name	17 Aug
1	Dr. P. Abiman	√
2	Prof. J. P. Jeyadevan	×
3	Prof. (Mrs.) M. Senthilnanthanan	√
4	Dr. N. Sivapalan	×
5	Dr. R. Srikaran	√
6	Dr. T. Manoranjan	×
7	Dr. P. Iyngaran	√
8	Dr. K. Velauthamurty	√
9	Dr. (Mrs.) J. Prabagar	×
10	Dr. G. Sashikesh	√
11	Dr. (Miss). S. Rasalingam	√
12	Mrs. R. Senthooran	×

Agenda:

CHE/18/55/01:	Preliminaries
	Head of the Dept. welcomed the members for the 55th Meeting of the Dept. of Chemistry
CHE/18/55/02:	Examination and Results
	The members were informed by the head of the department that all the results of the first semester course units for academic year 2016 has been released. He has also informed that the results for 3 course units of the 2nd semester for the academic year 2016 has already been released. He encouraged the staff members to spend much time in marking in order to release the results for rest of the course units as soon as possible.
CHE/18/55/03	AHEAD-Department Proposal: Head of the department requested the Department project coordinator, Prof. (Mrs.) M. Senthilnanthanan, to elaborate the student centered action plans to be implemented in our Department. Prof. (Mrs.) M. Senthilnanthanan put forwarded the plans that she had discussed with the activity coordinators during their meeting. After a lengthy discussion, the following action plans were finalized to be included in the proposal. **1) Improving English language proficiency of students** **a)** Facilitating through small group discussions: It was decided that 1st year students can be chosen as target group for this action. In Chemistry department there are 150 students studying in first year and therefore splitting them into 10 groups would be more productive. One group will be assigned to one senior staff member. All the staff members agreed to do their best to improve the English language proficiency of students. To make it more effective, it was decided to construct a computer laboratory having 15 computers and also decided to purchase suitable and latest English language practicing materials/tools/programmes. The suitable place for the laboratory was identified in the meeting. **2) Augmenting socio-emotional skills of staff and students: This activity was discussed under the following major themes** a) Introducing innovative assessment methods (with participation of all staff members) Staff can propose assessment methods which could improve the transferable skills of students and be able to incorporate them into the assessment of the course unit for which they are in charge. All the staff members agreed to do innovative assessment methods to suitable course units for which they are in charge. Also, it was decided to introduce LMS-based teaching, learning and assessment practices.

2.1 Minutes of the Department of Chemistry Meeting No: 55-2 (Academic Staff)

17/08/2018	Minutes of the Department of Chemistry	Meeting No: 55
Office of the Head	Faculty of Science, University of Jaffna	August/2018

	b) Improving research skills of the students (with participation of all staff members) It was decided to conduct staff training and workshops for students to improve their research skills. c) Outreach activities (in collaboration with Chem. Soc.) Promoting science education at schools and creating awareness on issues related to the subject in the society **3) Enhancing career prospects** a) Conducting career guidance workshops (in collaboration with career guidance cell) b) Organizing career fairs (in collaboration with career guidance cell)
CHE/18/55/04	Syllabus Revision- Head of the department requested the relevant staff members to send their revised 2nd year syllabus within one week to discuss them in the next department meeting.

P. Ekmane
Signature
Head/CHEMISTRY

HEAD
DEPARTMENT OF CHEMISTRY
UNIVERSITY OF JAFFNA
JAFFNA, SRI LANKA

2.2 Minutes of the Department of Chemistry Meeting No: 56 (Academic Staff)

23/08/2018	Minutes of the Department of Chemistry	Meeting No: 56
Office of the Head	Faculty of Science, University of Jaffna	August/2018

Attendance		
	Name	17 Aug
1	Dr. P. Abiman	√
2	Prof. J. P. Jeyadevan	√
3	Prof. (Mrs.) M. Senthilnanthanan	√
4	Dr. N. Sivapalan	×
5	Dr. R. Srikaran	×
6	Dr. T. Manoranjan	√
7	Dr. P. Iyngaran	√
8	Dr. K. Velauthamurty	√
9	Dr. (Mrs.) J. Prabagar	×
10	Dr. G. Sashikesh	√
11	Dr. (Miss). S. Rasalingam	√

Agenda:

CHE/18/56/01:	Preliminaries
	Head of the Dept. welcomed the members for the 56th Meeting of the Dept. of Chemistry
CHE/18/56/02:	Syllabus Revision
	Inorganic, Organic and Physical Chemistry 2nd year syllabi were discussed and necessary corrections were made. Objectives, ILOs and Contents of the course units were checked for compliance with SLQF guidelines. The course codes were modified based on the new syllabus structure. CHE201G2: Coordination and Organometallic chemistry CHE202G3: Quantum Mechanical approach to Atomic and Molecular Structure and Molecular Spectroscopy CHE203G2: Organic Chemistry II CHE204G3: Inorganic and Organic Chemistry laboratory II
CHE/18/56/03	AHEAD-Department Proposal: The proposed implementation of AHEAD-Department Proposal was discussed among the members. It was decided to have small group discussions, guided by academic staff, after working hours depending on student's availability to improve the English language proficiency. Also introducing innovative assessment methods to suitable course units and introducing LMS-based teaching, learning and assessment practices were discussed.

P. Abiman
Signature
Head/CHEMISTRY

HEAD
DEPARTMENT OF CHEMISTRY
UNIVERSITY OF JAFFNA
JAFFNA, SRI LANKA

2.3 Minutes of the Department of Chemistry Meeting No: 57-1 (Non-Academic Staff)

27/08/2018	Minutes of the Department of Chemistry	Meeting No: 57
Office of the Head	Faculty of Science, University of Jaffna	August/2018

Attendance		
	Name	27 Aug
1	Prof. (Mrs.) M. Senthilnanthanan	√
2	Dr. P. Abiman	√
3	Mr. A. Lakshman	√
4	Mr. A. thabesan	√
5	Mrs. N. Yogenthiram	×
6	Mr. S. satheesan	√
7	Miss. G. Kasipillai	√
8	Mr. S. Nanthakumar	√
9	Mr. A. Thaneswaran	√
10	Mr. S. Sivalingam	√
11	Mr. P. Uthayakumar	√
12	Mr. G. Senthilnathan	√
13	Mr. R. Kartheepan	√
14	Mr. K. Aravinth	×
15	Mr. K. Ithayakumaran	√
16	Mr. R. Arunpirasath	×
17	Mr. W. J. Abiyooth	×
18	Mr. S. Thivas	√
19	Mr. M. Chithirangan	√

Agenda:

CHE/18/57/01:	Preliminaries
	Head of the Dept. welcomed Prof. (Mrs.) M. Senthilnanthanan and nonacademic staff members for the 57th Meeting of the Dept. of Chemistry
CHE/18/57/02	AHEAD-Department Proposal: Head of the department requested the Department project coordinator, Prof. (Mrs.) M. Senthilnanthanan, to elaborate the student centered action plans to the nonacademic staff members, which are planned to be implemented in near future in our Department. Also he insisted the necessity of their fullest cooperation for successful implementation of the project. Prof. (Mrs.) M. Senthilnanthanan put forwarded the plans that she had discussed with the activity coordinators and academic staff members during their meetings. **1) Improving English language proficiency of students** **a)** Facilitating through small group discussions: It was decided that 1st year students can be chosen as target group for this action as there are 150 students studying in 1st year. Also it was decided to construct a computer laboratory having 15 computers and the fullest support of the staff members was requested for the arrangement of this laboratory. **2) Augmenting socio-emotional skills of staff and students** a) Introducing innovative assessment methods Staff can propose assessment methods which could improve the transferable skills of students and be able to incorporate them into the assessment of the course unit for which they are in charge. b) Strengthening research

2.3 Minutes of the Department of Chemistry Meeting No: 57-2 (Non-Academic Staff)

27/08/2018	Minutes of the Department of Chemistry	Meeting No: 57
Office of the Head	Faculty of Science, University of Jaffna	August/2018

Staff members promised to train the special degree students in their research in such a way that their research findings will end with publications and in future this research publication number must increase.

c) Sharing knowledge and skills (in collaboration with Chem. Soc.)
must focus on promoting science education at schools and creating awareness on issues related to the subject in the society

3) Enhancing career prospects

a) Conducting career guidance workshops (in collaboration with career guidance cell)
b) Organizing career fairs (in collaboration with career guidance cell)

Also the lack of laboratory facilities and toilet facilities for students were discussed with the staff members. Laboratory staff members described the needs in the laboratories such as First Aid Box, Eye Wash Box etc. Technical officers described the need for the development of the drainage system in our department. They were informed that once the student centered proposal is succeeded these needs will be met for the betterment of students.

P. Atmadr
Signature
Head/CHEMISTRY

HEAD
DEPARTMENT OF CHEMISTRY
UNIVERSITY OF JAFFNA
JAFFNA, SRI LANKA

2.4 Attendance sheet for the meeting with the special and extended degree students of Department of Chemistry

Meeting With 3M/4M/4X Students for AHEAD Project

Date: 21/08/2018

Venue: Lecture Hall - Small (CS) Time: 03.00-04.00 p.m

No	Reg.No	Name	Signature
		3M	
1	2015/SB/088	MR. SANTHIRAN ANULUXAN	
2	2015/SB/003	MISS. W. D. D. RUWANJAYATHILAKA	
3	2015/SB/061	MISS. DHANUSHIYA SIVARAJAH	
4	2015/SB/064	MISS. SRISUBANGI VVIJEYAKUMAR	
5	2015/SB/071	MISS. ATAPATTU MUDIYANSELAGE NIRASHA ASIRI ATAPATTU	
6	2015/SB/008	MISS. PIRANAVE SRITHARAN	
7	2015/SB/091	MISS. YATHARAMULLA MUHANDIRAMGE SUMUDU NIMASHA	
8	2015/SP/169	MISS. KALIMUTHU VIVIAN	
9	2015/SB/070	MISS. J. P. THILINI RUWANTHIKA WIJAYAWICKRAMA	
10	2015/SB/076	MISS. D. S. G. D. SENEWIRATHNA	
11	2015/SB/083	MR. T. M. C. NUWAN BANDARA TENNAKOON	
12	2015/SB/077	MR. MANANA DEWAGE RUMESH THILAKARATHNA	
13	2015/SB/001	MR .YOGENTHIRAN ELILAN	
14	2015/SB/090	MISS. UDAHA NAPE GEDARA HEYANI RUTH MARASINGHE	
15	2015/SB/093	MISS . RAJENDRAN HAMSHA	
16	2015/SB/074	MISS . S. M. CHAMINDI YASHODHA JAYATHILAKE	
17	2015/SB/009	MR. SUTHAHARAN SIVANUJAN	
18	2015/SB/035	MISS. JAYASINGHE ARACHCHILAGE THAMODI THILAKARATHNA	
19	2015/SB/031	MISS. SUKUMAR RAVEENA	
		4M	
20	2013/SP/200	HEWAYALAGE ASANGIKA PIUMI JAYASINGHE	
21	2014/SP/230	MALLAWA ARACHCHIGE DILKI THARAKA PERERA	Dilki
22	2014/SP/182	KONARA RUWANI KAUSHALYA	
23	2014/SP/135	HALEEM HALEEM KAIRUN NISA	
24	2014/SP/153	WICKRAMASINGHELAGE AROSHA SHASHINDRA SENEVIRATHNE	
25	2014/SP/175	HERATH MUDIYANSELAGE UTHTHARA THARINDRANI HERATH	Uththara
26	2014/SB/052	SENEVIRATHNE LASANTHI RATHNAYAKA	
27	2014/SB/058	HANDUWALA DEWAGE DINUSHA DILHANI	
28	2014/SB/068	ABDUL MAJEED MOHAMED ASMATH	
29	2014/SB/075	SAMARASINGHE KURUPPU ARACHCHIGE MANOJ RASIKA	
30	2014/SB/079	MOHAMED IQBAL PATHTHIMA PASNA	
31	2014/SB/084	KANDASAMY KOPINATH	
32	2014/SB/091	KANMANIRAJA MAYURATHAN	
33	2014/SB/092	KENGATHARAN THAJEEVAN	
34	2014/SB/113	SUNEKA SUKUMARAN	
35	2014/SB/121	HASINI SAUBHAGYA DAHANAYAKA	
36	2014/SB/122	TIKIRA HANNADIGE PAVITHRA JAYAMANI	
37	2013/SB/110	LOJAVITHA SOUNTHARARAJAN	
38	2014/SB/010	PATHMANATHAN SIVARUKSHY	
39	2014/SB/044	NANAYAKKARAGE AYESHANI KAUSHALYA	
40	2014/SB/061	WIJEKOON MUDIYANSELAGE ISURU KANCHANA WIJEKOON	
41	2014/SB/066	NAGARASA SHARANYA	
42	2014/SB/077	SITHTHIRAVEL MOKANA	
43	2014/SB/099	EKIRIYA HERATH MUDIYANSELAGE ACHALA DESHANI HERATH	
		4X	
44	2014/SB/108	VADIVEL KALAGINI	
45	2014/SB/026	I.M.M.SANJEEWANI	
46	2013/SP/223	E.A.S.PRIYANWADA	
47	2014/SP/237	MISS.S.D.D.I.DAYANANDA	
48	2014/SP/229	T.D.P.K.JAYASURIYA	
49	2014/SP/234	K.J.N.SILVA	

Prof. M. Senthilnanthanan (Proposal writer)

Dr. (Ms.) S. Rasalingam (" ")

2.5 Minutes of the special executive meeting of Chemical Society, Department of Chemistry

Minutes of Special Executive Committee meeting

Arranged to discussed about AHEAD Proposal writing

A special executive meeting was held on 24th Aug. 2018 at 4.00 PM in the tutorial room, Department of Chemistry, University of Jaffna to discuss regarding the AHEAD Project.

The meeting was presided by the President Mr. S. Anurakavan.

On behalf of the AHEAD proposal writing team, senior lecturers of Department of Chemistry, Prof (Mrs). M. Senthilnanthanan, Dr. G. Sasikesh and Dr. (Miss.) S. Rasalingam attended the meeting.

The President Mr. S. Anurakavan invited Prof (Mrs).M.Senthilnanthanan to address the meeting. She briefly outlined the plan which was decided during the staff meeting. She emphasized the planned activities to be carried out in collaboration with the Chemical Society.

A brief discussion was done on the AHEAD Project with the Executive committee members and some suggestions were also given by the committee members; Followings are the activities planned with the Chemical Society.

1. Revitalizing Chemical Society
2. Conducting Social action Projects

The AHEAD Project will support the activities, if the proposal win the grant. It was discussed that it is necessary to the build the existing infrastructure of chemical society office by procuring necessary office equipment and furniture so that its activities towards augmenting socio emotional skills of students could be stimulated. It was also discussed about the other projects, such as educational programs for school students, public awareness creation on burning issues and community based activities.

The meeting was adjourned at 5.30pm with a thank you note of the Asst. Secretary, Ms. N. Shobi.

For Secretary
(Asst. Secretary)

2.5 Attendance sheet of the special executive meeting of Chemical Society, Department of Chemistry

Special Chemical Society Executive Committee meeting for AHEAD Project

Date: 24.08.2018

Time: 4.00PM

Venue: Chemistry tutorial room

Name	Designation	Signature
S. Anurakaran.	President	
Sivapriya	Vicepresident	V. Sivapriya
N. Shobi	Asst. Secretary	
G. W. A. Pipuni Randima	Editor	
P. Anushkkaran	Past - President	
K. Karthikayini	Former - secretary	
Prof. M. Senthilnanthanan	Proposal writer / AP.	
Dr. (Ms.) S. Rasalingam	" " / SL	

2.6 Students' self-assessment questionnaire-1, Department of Chemistry

Department of Chemistry

Faculty of Science, University of Jaffna, Sri Lanka
Students' Self-Assessment Questionnaire
Accelerating Higher Education Expansion and Development (AHEAD) Programme

Information provided by you will be handled by the faculty for AHEAD project purpose only and will not be shared for any other purposes without your prior permission. You may select more than one answer if necessary (please underline your choice):

1. Year of Study: Level 1 / Level 2 / Level 3 / Level 4
2. Gender: ☐ Male ☐ Female
3. Ethnicity: ☐ Sinhalese ☐ Tamil ☐ Muslim ☐ Foreigner
4. The district from which you entered the University:.....
5. Z-score obtained in G.C.E. (A/L) to enter the University: .....
6. English language proficiency:

Examination	**Results**
G.C.E. (O/L)	
G.C.E. (A/L)	
English as a Second Language at the University of Jaffna	
Any other (specify e.g., Diploma in English etc.)	

7. How far the following components of the English classes conducted by the ELTC are/were useful in improving your English language proficiency?

	Very useful	Useful	Satisfactory	Poor	Not useful
Speaking					
Reading					
Listening					
Writing					

8. Please give suggestions to enhance your English language abilities through (select possible choices)

☐ Setting up of a Language laboratory for interactive teaching and learning
☐ Variety of evaluation processes (e.g. interviews, viva, presentations, creative work etc.)
☐ Collaboration between inter/intra university student societies
☐ Cultural activities / competitions
☐ Scientific toastmaster programmes / speech master programmes /Gavel club
☐ Encouraging university business linkage programs
☐ Others (specify) .....

2.6 Students' self-assessment questionnaire-2, Department of Chemistry

Department of Chemistry

9. How far are you satisfied with the current undergraduate research project facilities available in the Faculty of Science?

☐ Highly satisfied ☐ Moderately satisfied ☐ Satisfied ☐ Somewhat satisfied ☐ Unsatisfied

10. Are the equipments/facilities available in the laboratories sufficient and suitable to carry out undergraduate experiments? ☐ Yes ☐ No

11. Are you satisfied with the current business linkages in the Faculty with the private sector?

☐ Highly satisfied ☐ Moderately satisfied ☐ Satisfied ☐ Somewhat satisfied ☐ Unsatisfied

12. How could the University improve the linkage with industry?

☐ collaborative research ☐ industrial training ☐ career guidance opportunities

☐ startup facilities (e.g. establishing incubation cell in the Faculty, seed money)

13. Are you satisfied with the current student centered teaching learning activities ☐ **Yes** ☐ **No**

If you say **No,** please indicate how it could be improved:

☐ LMS based teaching, learning and assessment ☐ small group teaching / tutorial

☐ smart boards etc ☐ facilities for small group discussion and projects

☐ improve the hotspot facilities for self learning ☐ improve library collections (e-copy)

14. How far are you satisfied with the audio-visual aids (audio-video equipment, multimedia projectors, visual presenters, etc.) available in the lecture rooms / laboratories?

☐ Highly satisfied ☐ Moderately satisfied ☐ Satisfied ☐ Somewhat satisfied ☐ Unsatisfied

15. Which of the following socio emotional skill(s) would you like to improve during your study programme?

☐ self-awareness ☐ self management ☐ social awareness ☐ inter personal skills

☐ responsible decision making

☐ Others (specify) ……

16. What are the skills that need to be developed during the undergraduate programme?

☐ Communication skills ☐ ICT skills ☐ Management skills ☐ Analytical skills

☐ Others (specify) ……

17. When you graduate, where would you like to get employed?

☐ private sector ☐ government sector ☐ Entrepreneur ☐ other

18. What actions could be taken to make you aware of future career prospects?

☐ Career fair ☐ Career guidance workshop ☐ Interview preparation support

☐ Job search support ☐ On campus graduate recruitment interviews ☐ Industrial training

☐ Practice / Mock job interviews ☐ Development of CV and guidance in filling application forms

Any other suggestion to improve your employability (in your study programme)

2.7 Graduates' survey-1, Department of Chemistry

Survey for the AHEAD proposal Results area-2
Faculty of Science
University of Jaffna, Sri Lanka

Purpose of this Survey:

- To measure the satisfactory level of learning, teaching and assessment in the degree programme
- To determine the interpersonal skill development through the degree programme
- To know the development of language proficiency by the degree programme
- To identify the level of welfare and support services provided

Name:.....

Gender: Male ☐ Female ☐

Civil Status: Single ☐ Married ☐

Email Id:.....

Telephone No:.....

Contact address:.....

.....

Name of the Degree Programme:

a. B.Sc. (General): ☐

b. B.Sc. (Special): ☐ Subject: .....

c. B.Sc. Applied Science: ☐ Subject: .....

d. CSc.: ☐

Date of Entrance: D D M M Y Y Y Y

Effective Date of the Degree: D D M M Y Y Y Y

Reason of the subject selection:

a. Continuity of GCE A/L subjects ☐
b. Job Opportunity ☐
c. Guidance of the Seniors ☐
d. Guidance of the Teachers ☐
e. Family Background ☐
f. Personal Interest ☐
g. Others ☐

Are you Currently Employed? : Yes ☐ No ☐

Is there any relevance between your degree and present employment: Yes ☐ No ☐

2.7 Graduates' survey-2, Department of Chemistry

Survey for the AHEAD proposal Results area-2
Faculty of Science
University of Jaffna, Sri Lanka

If you are currently employed, please provide the employment's details:

Designation:.....

Temporary / Permanent

Name of the employing organization: .....

Salary scale:.....

Date of Appointment:.....

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Reflection on the learning, teaching and assessment methods					
Current programme fulfilled my learning expectations	1	2	3	4	5
Current programme workload was appropriate	1	2	3	4	5
Curriculum was more relevant to the carrier aspirations	1	2	3	4	5
Curriculum included sufficient focus on practical aspects	1	2	3	4	5
Teaching and learning is student centered	1	2	3	4	5
The ICAs and ECE are appropriately timed	1	2	3	4	5
The assessment numbers are adequate	1	2	3	4	5
Any relevant comments or suggestions:					
Refection on the inter personal communication skill development: To what extend do you agree that the following skills were developed by the degree programme					
Time management skills	1	2	3	4	5
Critical thinking and problem solving skills	1	2	3	4	5
Work ethics	1	2	3	4	5
Listening	1	2	3	4	5
Negotiating	1	2	3	4	5
Flexibility	1	2	3	4	5
Working with groups	1	2	3	4	5
Leadership	1	2	3	4	5
ICT related skills	1	2	3	4	5

2.7 Graduates' survey-3, Department of Chemistry

Survey for the AHEAD proposal Results area-2
Faculty of Science
University of Jaffna, Sri Lanka

To what extent do you think that your English been improved by the programmelanguage proficiency has been improved					
• Writing	1	2	3	4	5
• Reading	1	2	3	4	5
• Speaking	1	2	3	4	5
Any relevant comments or suggestions:					
Reflection on welfare and support services given in the programme					
Academic guidance	1	2	3	4	5
Mentoring	1	2	3	4	5
Health services	1	2	3	4	5
Lecture halls	1	2	3	4	5
Laboratories	1	2	3	4	5
Library	1	2	3	4	5
Internet	1	2	3	4	5
Financial assistances	1	2	3	4	5
Quality of students' life during the undergraduate period	1	2	3	4	5
Canteen	1	2	3	4	5
Sports	1	2	3	4	5
Administrative support	1	2	3	4	5
Adequate Career guidance	1	2	3	4	5
Any relevant comments or suggestions:					
Overall Satisfaction					
The efficiency of the current programme	1	2	3	4	5
Recommend the current programme to prospective students	1	2	3	4	5

Grievances:

Please provide if any grievances to be reported:.....

.....

.....

Thank you for your valuable contribution.

2.8 Staff Assessment Questionnaire-1, Department of Chemistry

Faculty of Science, University of Jaffna, Sri Lanka

Staff Assessment Questionnaire

Accelerating Higher Education Expansion and Development (AHEAD) Program

Information provided by you will be handled by the Department for AHEAD project purpose only and will not be shared for any other purposes without your prior permission. You may select more than one answer if necessary (please mark your choice):

1. Gender : ☐ Male ☐ Female

2.

No	Questions	Excellent	Very Good	Good	Average	Poor
1.	**English language skills of students**					
1.1	At the entrance level					
	1.1.1 Writing					
	1.1.2 Reading					
	1.1.3 Speaking					
1.2	At the exit level (Applied Science Degree)					
	1.2.1 Writing					
	1.2.2 Reading					
	1.2.3 Speaking					
1.3	At the exit level (Special Degree)					
	1.3.1 Writing					
	1.3.2 Reading					
	1.3.3 Speaking					
2.	**Analytical skills of students**					
2.1	At the exit level (Applied Science Degree)					
2.2	At the exit level (Special Degree)					
3.	**Problem solving ability of students**					
3.1	At the exit level (Applied Science Degree)					
3.2	At the exit level (Special Degree)					
4.	**Knowledge on scientific report writing**					
4.1	At the exit level (Applied Science Degree)					
4.2	At the exit level (Special Degree)					
5.	**Computer literacy of students**					
5.1	At the exit level (Applied Science Degree)					
5.2	At the exit level (Special Degree)					
6.	**Character of students (social skills, soft skills and inter- personal relationships)**					
6.1	Ability to work in a team					
6.2	Professional mannerism (lecturers, demonstrators, etc.)					
6.3	Social skills					
6.4	Ability to keep commitments/meet deadlines					
6.5	Class attendance					
6.6	Ability to work independently					

2.8 Staff Assessment Questionnaire-2, Department of Chemistry

3. Please give suggestions to enhance English language abilities of students (select possible choices)

- ☐ Setting up of a Language laboratory for interactive teaching and learning
- ☐ Variety of evaluation processes (e.g. interviews, viva, presentations, creative work etc.)
- ☐ Collaboration between inter/intra university students societies
- ☐ Cultural activities / competitions
- ☐ Scientific toastmaster programs / speech master programs / Gavel club
- ☐ Encouraging university business linkage programs
- ☐ Others (specify) .....

4. How far are you satisfied with the current undergraduate research project facilities available in the Department?

☐ Highly satisfied ☐ Moderately satisfied ☐ Satisfied ☐ Somewhat satisfied

☐ Unsatisfied

5. Are the equipment/facilities available in the laboratories sufficient and suitable to carry out undergraduate experiments?

☐ Adequate ☐ Moderately Adequate ☐ Not Adequate

6. Are you satisfied with the current business linkages in the Department with the private sector?

☐ Highly satisfied ☐ Moderately satisfied ☐ Satisfied ☐ Somewhat satisfied

☐ Unsatisfied

7. How could the university improve the linkage with industry?

☐ Collaborative research ☐ industrial training ☐ career guidance opportunities

☐ Startup facilities (e.g. establishing incubation cell in the faculty, seed money)

8. Are you satisfied with the current student centered teaching learning activities

☐ Yes ☐ No

If you say **No**, please indicate how it could be improved:

☐ LMS based teaching, learning and assessment ☐ small group teaching / tutorial

☐ Smart boards etc. ☐ Facilities for small group discussion and projects

☐ Improve the hotspot facilities for self-learning ☐ improve library collections (e-copy)

Thank you for your valuable contribution

2.9 Attendance sheet of Stakeholders' discussion

UBL cell, Faculty of Science, University of Jaffna (Stakeholders' discussion 1: 06.07.2018)

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UBL cell, Faculty of Science, University of Jaffna (Stakeholders' discussion 1: 06.07.2018)

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UBL cell, Faculty of Science, University of Jaffna (Stakeholders' discussion 1: 06.07.2018)

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Appendix 3

Detailed budget for activity 1

Sub- activity	Mandatory Resources	Estimated Cost (x 1,000.00 LKR)					
		Goods	**Works**	**Con. Services**	**Non. Con. Services**	**OVAA**	**Total**
1.1 Preparing students for UTEL examinations	Auto doors, aluminium windows, glass frame, bench top fitting		180				180
	Air-conditioning	330					330
	Electrical work		155				155
	Curtaining		35				35
	Floor carpeting		50				50
	Desktop PCs (i3)	1350					1350
	Computer rolling chairs	11					11
	Head phones with mics	30					30
	CCTV cameras (4 channels) with monitor	65					65
	UTEL learning materials	360					360
1.2 Establishing a Gavel club	Inauguration				20		20
	Competitions (Space, refreshments and meals, honorarium for evaluators, stationaries, awards, cleaning and sanitation, etc.)				800		800
1.3 Assisting students sitting for IELTS/TOEFL examinations	IELTS and TOEFL learning materials	750					750
	Allowance for Project Coordinator					360	360
Total		**2896**	**420**	**0**	**820**	**360**	**4496**

Detailed budget for activity 2

Sub- Activity	Mandatory Resources	Estimated Cost (x 1,000.00 LKR)					
		Goods	**Works**	**Con. Services**	**Non. Con. Services**	**OVAA**	**Total**
2.1Training staff and students on digital-based teaching-learning strategies	Workshop expenses (Space, refreshments and meals, honorarium for resource persons, stationaries, cleaning and sanitation, etc.)				100		100
2.2 Introducing digital-based teaching-learning process	Camcorder	200					200
	e-content development software licenses	250					250
	Interactive display	1000					1000
	Laser pointers	20					20
	Digital language laboratory maintenance					180	180
2.3 Introducing digital-based assessment methods	Stationaries	300					300
	Printer	100					100
	Allowance for Activity Coordinator					90	90
Total		**1870**	**0**	**0**	**100**	**270**	**2240**

Detailed budget for activity 3

Sub- Activity	Mandatory Resources	Estimated Cost (x 1,000.00 LKR)					
		Goods	**Works**	**Con. Services**	**Non. Con. Services**	**OVAA**	**Total**
3.1 Upgrading laboratory environment	Renovating doors and windows		70				70
	Wash basin fitting and Plumbing		60				60
	Air-conditioning	330					330
	Electrical work		265				265
	Tiling		265				265
	curtaining		12				12
	Varnishing work benches and shelf		120				120
	Termite control		360				360
	Renovating fume hood		550				550
	Multimedia projector	640					640
	Projector screen	80					80
3.2 Training for staff and students	Workshop expenses (Space, refreshments and meals, honorarium for resource persons, stationaries, cleaning and sanitation, etc.)				240		240
	Staff training sessions (Space, refreshments and meals, stationaries, cleaning and sanitation, etc.)				115		115
	Travel, Subsistence, and honorarium for resource persons				150		150
3.3 Encouraging collaborative, interdisciplinary research	Students-staff mobility				250		250
	Allowance for Activity Coordinator					90	90
Total		**1050**	**1702**	**0**	**755**	**90**	**3597**

Detailed budget for activity 4

Sub- Activity	Mandatory Resources	Estimated Cost (x 1,000.00 LKR)					
		Goods	**Works**	**Con. Services**	**Non. Con. Services**	**OVAA**	**Total**
4.1 Revitalizing Chemical Society	Office furniture (tables, chairs, cupboard)	350					350
	White board	20					20
	curtaining		25				25
	Desktop PC	140					140
	Printer	50					50
	Photocopier	135					135
4.2 Conducting SAPs	Travel and subsistence				250		250
	Consumables (chemicals, glassware, stationaries, etc.)					600	600
	Allowance for Activity Coordinator					90	90
Total		**695**	**25**	**0**	**250**	**690**	**1660**

Detailed budget for activity 5

Sub- Activity	Mandatory Resources	Estimated Cost (x 1,000.00 LKR)					
		Goods	**Works**	**Con. Services**	**Non. Con. Services**	**OVAA**	**Total**
5.1 Conducting career guidance workshops	Workshops (Space, refreshments and meals, stationaries, cleaning and sanitation, etc.)				160		160
	Travel, Subsistence, and honorarium for resource persons				250		250
5.2 Organizing career fairs	Basic infrastructure amenities	1000	500				1500
	Upgrading washroom facilities		1000				1000
	Allowance for Activity Coordinator					90	90
Total		**1000**	**1500**	**0**	**410**	**90**	**3000**