TERMS OF REFERENCE (TOR)

TOT Training Programme on Coding Teacher Instruction Manual (TIM) for Teachers ICTA/GF-GRANT/CON/CQS/2017/16

1.0 INTRODUCTION

Information and Communication Technology Agency of Sri Lanka (ICTA), an agency established in 2003 under the Information and Communication Technology Act, No. 27 of 2003 and Amendment Act 33. The agency is mandated to ICT development strategies and programmes, in both the government and private sectors, including Legal & Policy reforms.

The overall vision of ICTA is to make Sri Lanka a digital inclusive country by transforming towards a knowledge based society. All the programmes and projects are aligned towards the above vision and one of the focus areas in this development is 'Taking Technology to Citizens'.

ICTA is currently formulating programmes and projects towards digital education to develop ICT skills in children. One such initiative is the "All Children Coding Initiative" which will develop their logical and creative thinking, develop problem solving skills, programming and entrepreneurship. Further coding will provide the children to understand how and when to use the correct technology.

2.0 BACKGROUND

Most of the developed countries, particularly USA and Europe are taking a keen interest in encouraging schools to teach computer science and coding to their children. The code.org which was initiated and launched in Seattle is running its programs at the schools to train and motivate school children to be coders by conducting activities in schools. One such popular activity is 'Hour of Code' and has gained popularity among schools not only in USA. European Union has embarked on a similar coding initiative titled "All you need is CODE", with the aim of equipping young children with the required skills to succeed.

Considering the technology advancement in the world in the education sector, ICTA has taken steps to develop and deliver a coding curriculum for children. The teachers will be trained on the developed Teacher Instruction Manual to deliver the content successfully to the children. A formal, structural, systems will be established to teach coding from the earliest childhood.

3.0 OBJECTIVE OF THE ASSIGNMENT

The overall objective of the assignment is to provide a comprehensive Training of Trainer (TOT) training to 200 government teachers on the developed Coding Teacher Instruction Manual (TIM) to make them as Master Trainers.

4.0 SCOPE OF SERVICES AND TASKS TO BE CARRIED OUT

4.1 Scope

The trainings should be designed and delivered to two hundred (200) government teachers based on the developed Teacher Instruction Manual given by the client.

This assignment will mainly cover four training components which requires to be trained for all participants.

Training providers should understand the objective and content of the TIM and deliver the same with the understanding of the background and expectation of the target groups. The training programme should be designed using adult oriented, participatory interactive sessions including group activities, to ensure the effectiveness of the training with the aim of achieving the expected learning outcome. Presentations and lectures should be simple enough for participants to understand. Trainers are always encouraged to make their sessions in an interactive and participatory manner.

4.2 OUTLINE OF TASKS

Trainers are encouraged to provide details of any value additions to overall training programme based on the above-mentioned training requirements, training approaches and methodologies.

4.2.1 Study the developed TIM content on all 4 levels (Refer **Annex 1** for TIM outline)

4.2.2 Based on the developed TIM content, prepare a **Trainer's Hand Book** both in Sinhala & Tamil including activities and training plan outline with comprehensive training approach & methodology.

4.2.3 Trainers should ensure that group activities, discussion, role plays, etc are included into the training modules to get the active participation of the trainees.

4.2.5 The consultant is responsible for planning and implementing comprehensive training evaluation techniques, acceptable to ICTA to measure the quality of the delivery of the ToT program. The consultant is expected to propose and design a proper evaluation mechanism in the bid with the appropriate evaluation techniques to be used as part of the training approach.

4.2.6 Total duration of lessons should be 8 hours (minimum) per day, excluding breaks for tea, lunch and evaluations.

4.2.7 Team Lead should coordinate with ICTA Project Manager and other service providers.

Training durations batch-wise

Per Batch	Curriculum Level 1 & 2			Curriculum Level 3 & 4			
	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 4
Duration							
Hours per Day	8	8	4	8	8	8	4

Batches will be grouped language wise and training should be conducted accordingly. It is suggested to have parallel batches as per the training schedule shown below;

Batch	No. of Participants	Weeks				Language
		W1	W2	W3	W4	
B1	50	Level 1 & 2		Level 3 & 4		Sinhala
B2	50	Level 1 & 2		Level 3 & 4		Sinhala
B3	50		Level 1 & 2		Level 3 & 4	Tamil
B4	50		Level 1 & 2		Level 3 & 4	Sinhala
Total	**200**					

5.0 PREFEREABLE QUALIFICATIONS OF CONSULTANTS

Key Staff	No.	Preferable Qualification	Preferable Experience
1) Team Lead	01	Degree from a recognized University.	- Experience in Managing and coordinating (min 3 years) - Experience in working with similar projects in Sri Lanka (min 2 years)
2) Trainer – Sinhala Medium	02	Degree from a recognized University (Information Technology, Computer Science or equivalent)	- Demonstrate at least 2 years' experience in lecturing/training ICT (specifically in programing). - At least 1 year Training experience. - Fluency in Sinhala language
2) Trainer – Tamil Medium	01	Degree from a recognized University (Information Technology, Computer Science or equivalent).	- Demonstrate at least 2 years' experience in lecturing/training ICT (specifically in programing).

			- At least 1 year Training experience. - Fluency in Tamil language
4) Instructors – Sinhala Medium.	04	Degree/Diploma from a recognized University (Information Technology, Computer Science or equivalent)	- Experience in providing lectures/demonstrating ICT for minimum 1 year - Fluency in Sinhala language
5) Instructors – Tamil Medium	02	Degree/Diploma from a recognized University (Information Technology, Computer Science or equivalent)	- Experience in providing lectures/demonstrating ICT for minimum 1 year - Fluency in Tamil language

6.0 FINAL OUTPUTS

No.	Deliverable	Duration
D1	Study the Teacher Instruction manual (TIM) - Design training plan outline, activities and training methodologies. - Submit **Trainer's hand book** in Sinhala & Tamil with activities and training plan outline in soft copy (editable format) and hard copy. - Submit Trainer's hand book in Camera- ready copy.	Commencement date + 21 days
D2	Submit an innovative and comprehensive training evaluation mechanism to ensure the quality of the training.	Commencement date + 1 month
D3	After successful completion of Level 1 and 2; Submission of the completion report of Level 1 and Level 2 training for all 4 batches. Including sample soft copies (editable format) / hard copies of the completed activities by the participants, photographs etc.	Commencement date + 2.5 months
D4	After successful completion of Level 3 and 4; Submission of the completion report of Level 3 and Level 4 training for all 4 batches. Including sample soft copies (editable format) / hard copies of the completed activities by the participants, photographs etc.	Commencement date + 3 months
D5	After successful completion of 4 levels : - Submit comprehensive training evaluation report including the results and participation feedback analysis.	Commencement date + 3 months
	TOTAL DURATION	**3 Months**

7.0 CLIENT'S INPUTS

1. The client will ensure to set up a conducive teaching learning environment including appropriate seating arrangements and teacher and learner equipment.
2. Teacher Instruction Manual - Levels 1 to 4
3. No. of Participants: 200 (50 per batch x 4 batches)
4. Laptops: 20 nos. per batch will be provided
5. Internet Connectivity: 3nos. 4G Connections
6. Uninterrupted power supply
7. Multi Media Projector with Screen
8. PA System with 2 FM microphones

8.0 REVIEW PROCEEDURE OF THE OUTPUTS

ICTA project team in collaboration with Ministry of Education will evaluate the training outcome to ensure the attitudes and behavior changes and to enhance the quality of the training.

Annex I

Outline of the Teacher Instruction Manual

The proposed coding curriculum focuses on developing students' problem-solving, logical thinking and creative thinking skills.

Proposed hardware and software that will be used in the training;

- MSW Logo, Bee–bot, Scratch, Touch develop, Pi2Go, AppInventor, Python, Rraspberry Pi.

Level	Content
Level 1	• Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions • Try old solutions to problems, but will search for new methods when challenged. • Use logical reasoning to predict the behavior of simple programs. • Create and debug simple programs. • Generate new ideas and concepts that have value to the individual or others.
Level 2	• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts • Use sequence, selection, and repetition in programs work with variables and various forms of input and output • Search for new and more effective methods, making connections between previously unrelated ideas. • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.
Level 3	• Design, use and evaluate computational abstractions that model the state and behavior of real-world problems and physical systems. • Understand several key algorithms that reflect computational thinking, use logical reasoning to compare the utility of alternative algorithms for the same problem. • Use two or more programming languages, to solve a variety of computational problems; make appropriate use of data structures, design and develop modular programs that use procedures or functions. • Pursue new methods and solutions, thinks outside the box, connects disparate ideas, attempt unorthodox methods.

Level 4	• Design, use and evaluate computational abstractions that model the state and behavior of real-world problems and physical systems • Understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching] • Use logical reasoning to compare the utility of alternative algorithms for the same problem • Make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions. • Develop and apply analytic, problem-solving, design, and computational thinking skills • Design, use and evaluate computational abstractions that model the state and behavior of real-world problems and physical systems. • Use analysis and reusing of information from one situation to another to solve problems.