

Memorandum of Understanding

This Strategic Knowledge and STEAM Skill Development Partnership MOU is effective from 22.06.2021 for a period of 1 (one) year and is renewable on yearly basis

BETWEEN: ISTEAM RESEARCH PVT LTD (ISR), a company organized and existing under the laws of the state of West Bengal with its office located at 36/1, Jhowtala Road, 2nd Floor, Kolkata 700019, West Bengal, India

AND: SCOTTISH CHURCH COLLEGE located at 1&3, Urquhart Square, Kolkata 700006, West Bengal, India

The objective of this MOU is to create a strategic knowledge and skill development partnership in the field of Experiential Learning through integrated Science, Technology, Engineering, Arts & Mathematics (S.T.E.A.M) between ISR & Scottish Church College in order to empower schools and institutions pan India, Bangladesh and Sri Lanka

Both ISR & Scottish Church College agree as follows:

1. Overall Goal

Contribute towards 8 SDGs of the United Nations by promoting Invention Literacy with Experiential Learning through integrated Science, Technology, Engineering, Arts & Mathematics (S.T.E.A.M) with the use of Futuristic Technologies, aligned to the new National Education Policy of India (NEP – 2020) to create mindful life-long learners and Problem Solvers.

2. About India's new National Education Policy (NEP-2020)

The NEP focuses on five common values, namely, Truth, Peace, Non-Violence, Love and Righteous Conduct. Values in education are more important than any subject inherited in the education system. Value based education will help students to know what is right and what is wrong. It will also help students to avoid fanaticism, ill-will, violence, dishonesty, corruption etc.

The new National Education Policy (NEP-2020) envisages to promote scientific temper and evidence-based thinking; creativity and innovativeness; sense of aesthetics and art; oral and written communication; health and nutrition; physical education, fitness, wellness, and sports; collaboration and teamwork; problem-solving and logical reasoning; vocational exposure and skills; digital literacy, coding and computational thinking; ethical and moral reasoning; knowledge and practice of human and constitutional values; gender sensitivity; fundamental duties; citizenship skills and values; knowledge of India; environmental awareness, including resource conservation, sanitation and hygiene; and current affairs and knowledge of critical issues facing local communities, states, the country, and the world.

The new education policy 2020 approved by the cabinet has described many reforms for both school education as well as for higher education. Experiential learning is also one of the important parts of

the new way of learning, highlighted in NEP 2020. The new education policy will give way for learning with critical thinking along with 'discovery based, discussion-based, and analysis-based learning. There will be bagless days for students and visits to local artists and the probability of vocational training from Class 6 onwards which also includes internships. Critical thinking, experiential and application-based learning, flexibility in education, concentration on life skills, multidisciplinary and endless review are some of the remarkable features of this policy. The schools' curricula and pedagogy proposes for the holistic growth of students by providing them the key 21st Century Skills, a decrease in curricular content to improve essential learning, critical thinking and a higher focus on experiential education. The policy mainly concentrates on modernizing the curriculum for the school education, 'easier' Board exams, a decrease in the syllabus to retain 'core essentials' and pushed on 'experiential learning and critical thinking'.

3. About Experiential Learning (STEAM Education)

Over the years, focus has been mostly on Science or Mathematics. Comparatively little attention was given to Technology, which are basically products and systems that address human needs, or to Engineering & Arts, which are the creative processes used to design these products. Most subjects were taught in isolation. In the real world, science relies on technology, mathematics, arts and engineering. Engineering depends on findings from science, the application of mathematics and design, for the use of technological tools.

Schools must help students learn to highlight these connections. Research indicates that it can be difficult for students to make these connections by themselves. International STEAM Research (ISR) promotes invention literacy helping teachers and students make these connections within the classroom without adding any further burden on the curriculum being followed by the school, but by adding value to it with enquiry and activity based modules. Research studies on Neuroplasticity prove that this helps students to improve their cognitive skills. Students will improve language and thinking skills, including processing speed, memory and attention. Students will have the freedom to explore without the fear of failure with futuristic technologies like Robots, Drones, Artificial Intelligence, Coding etc.

STEAM is not a subject at school, it is a way of thinking, doing and learning. STEAM is an acronym for Science, Technology, Engineering, Arts and Mathematics. It is not about being an expert in all the subjects, instead it is about harnessing the essential transferable skills behind them which are vital for a thriving economy and a safe and healthy Society.

Identifying one's strengths and working in teams help create greater impact than working alone. Teamwork is an essential STEAM skill. For example, whether it be the search for gas deposits by geologists and geophysicists or developing vaccines by scientists, engineers help in designing and running platforms, plants and equipment. Construction teams work to build essential infrastructure under the supervision of project managers. Health and Environmental scientists work with the entire team every step of the way.

STEAM skills will be required in almost every career. 80% of today's fastest-growing careers require STEAM skills, which can unlock one's potential to earn a higher salary or become more employable. STEAM education can start small, engaging students in schools. STEAM classes or teaching to code could be the first step to sustainably empowering students in being prepared for the future. The good news is, STEAM Skills will holistically empower students as learners for life with 21st Century skills. These skills are critical for students in order to become problem solvers and succeed in our information driven, rapidly changing and exponentially developing world, as law abiding versatile productive citizens of the world.

Learning is beautiful when it is purposeful and has real world connections. It is of paramount importance to help children understand the concepts they learn with a real-world connect. Hence, STEAM inquiry-based programmes/modules incorporate 21st century life skills through the 4Cs to help students explore the realities of working and thriving in the ever evolving work environments in a mindful manner. It contributes towards the holistic growth of every student. 4Cs represent the practices of Communication, Collaboration, Critical Thinking and Creativity. These practices are needed for holistic growth.

The infographic attached along with this document illustrates the need for STEAM based Experiential Learning to be future ready for Industry 5.0.

4. Challenges

Although NEP-2020 is a great step forward, implementing it needs a collective effort especially among institutions, organizations, educationists and thought leaders. Few of the challenges which the existing schools and institutions in India are faced with in order to implement Experiential Learning:

- 4.1 Large investments required by institutions to implement Experiential Learning within schools for upgrading infrastructure and equipping itself with futuristic training equipment.
- 4.2 Requirement of Re-skilling/Up-skilling of teachers/facilitators.
- 4.3 Identifying and Partnering with the right Experts & Brands.

5. Solution to the problems/ challenges:

In order to address the above issues/challenges, ISR empowers schools to provide their students with hands-on integrated Science, Technology, Engineering, Arts & Mathematics (STEAM) activities as per International standards, with the use of futuristic technologies, without the schools having to make large scale financial investments or major changes to the existing school infrastructure or engaging additional Human Resource. ISR delivers this to schools through its well-trained facilitators who will be assigned to each school along with all necessary equipment and kits.

6. Cooperation (Scope of work) between Scottish Church College & International STEAM Research (ISR):

6.1. In order to empower Schools and Institutions to deliver the above mentioned Experiential Learning through integrated S.T.E.A.M Education with Futuristic Technologies, ISR and Scottish Church College shall partner to offer and implement it in Schools and institutions.

6.2 Scottish Church College will recommend to ISR its outgoing as well as qualified students from its Teachers' Training Department to be trained in the above mentioned programme. These students will undergo an internship programme for a minimum period of 1 (one) month.

6.3 ISR will train these students to be facilitators in schools or in any other capacity that it deems fit.

6.4 ISR and Scottish Church College will jointly issue Certificates under the seal & signature/s of the authorised person/s, to the students as and whenever applicable.

6.5 Scottish Church College will support this partnership by facilitating ISR to host STEAM promotional workshops within its campus in an embarked classroom/area with the necessary Audio and Video equipment as and when required.

6.6 In a spirit of friendship and mutual understanding both ISR and Scottish Church College agree to promote academic exchange and cooperation as far as feasible.

6.7 Both ISR and Scottish Church College agree to cooperate in conducting online research-based conferences on international platform.

6.8 Both ISR and Scottish Church College agree to display their logos on their websites and publications as official partners for STEAM Education.

6.9 Representatives of both ISR and Scottish Church College shall consult at regular intervals, to consider the progress of mutual programmes/projects and to evaluate future action.

6.10 ISR will employ potential B Ed graduates as STEAM facilitators after they have successfully completed the mandatory internship/training at ISR.

7. Expected Results

7.1 Scottish Church College will cooperate with ISTEAM Research Private Limited (ISR) in order to help Schools & Institutions pan India, Bangladesh and SriLanka to implement Experiential Learning with its comprehensive repository of dynamic STEAM inquiry-based modules enhanced with futuristic technologies like Robotics, Drones, AI, IOT, Coding These will enable students to be engaged in a hands-on manner by bringing innovative STEAM activities into the classroom without putting any burden on to the school management. The lessons will be customized as per the need and convenience of the school for all grades and genders. ISR modules add value to the national and state standard curriculums through experiential learning. Students will perform better in their academic studies in school as their learning path will become more receptive and logical.

7.2 This cooperation between ISR & Scottish Church College will promote invention literacy through active participation of students, eliminating the fear of failure by encouraging them to Ask, Research, Imagine, Plan, Collaborate, Create, Experiment, Improve and Document, along with the most important ingredient for learning and memory, that is, Fun. These are all integral to the Design Thinking process. The outcome of such STEAM engagement will help students become mindful and versatile problem solvers of the future.

7.3 ISR experiential learning modules and programmes are designed on a sustainable ISR Framework of 7Es and CRM. It is based on integrated learning of Science, Technology, Engineering, Arts and Mathematics with the core based on Bloom's taxonomy and 4Cs of the 21st Century Skills. It is designed with the aim of developing lifelong learners who are empowered with the capability to effectively and creatively apply their competencies to complex situations in their day to day life in a sustainable manner as well as be ready for future jobs.

7.4 Students will be evaluated on their progress in STEAM activities using a specific evaluation rubrics, which focuses on - objectives, concepts, cognitive understanding and application.

7.5 This partnership between ISR and Scottish Church College will benefit a large number of students in India, Bangladesh and Sri Lanka, resulting in a paradigm shift in the education sector. For more details about STEAM Education and International STEAM Research, one can log on to www.isrsdpc.com.

7.6 This strategic partnership between ISR and Scottish Church College will not only contribute towards the Global Goals but also towards improving the economy of India, Bangladesh and Sri Lanka in the future by creating a large number of jobs as well as preparing students to be future ready.

8. Dispute settlement:

In an event of dispute and/or disagreement arising out of this MOU, it will be amicably resolved by discussion, reconciliation method and for this both ISR and Scottish Church College will designate their personnel.

9. Termination:

In case either party deems it necessary, inevitable and absolutely necessary to discontinue this MOU, the party so opting will have to serve 30 days prior written notice by Registered Post or Speed Post or through a Reputed Courier.

10. Force Majeure:

Neither ISR nor Scottish Church College shall be responsible or liable for or deemed in breach thereof because of any delay or failure in the performance of its obligations hereunder or failure to meet with its obligations due to any event or circumstance (a force majeure event) beyond the reasonable control of the party experiencing such delay or failure, including the occurrence of the following:

- A) Acts of God
- B) Natural calamities, epidemics, pandemics, explosions etc.
- C) Acts of war or civil unrest
- D) Any requirement, action or omission to act pursuant to any judgement or order of any court or judicial authority

11. Amendments to this MOU:

No amendment or modification of this MOU shall be valid unless the same is made in writing by both the parties or their authorized representative and specifically stating the same to be an amendment to this MOU. The modifications/changes shall be effective from the date on which they are made/executed, unless otherwise agreed to.

12. Conclusion

This partnership will ensure inclusive and equitable quality education and promote lifelong learning opportunities by way of higher order thinking and invention literacy among students. It will help students develop knowledge beyond just text books, provide the perspective of a scientist and scientific approach to problem solving. Help students to learn in an integrated manner through real-world scenarios and industry practice.

This partnership will ignite minds, develop mindful and versatile problem solvers and researchers for a sustainable world and contribute towards the Sustainable Development Goals of the United Nation.

The agreement has been executed in two originals, one of these has been retained by ISR and the other by Scottish Church College.

For Scottish Church College

Signature: Madhuranjari Mandal
Name: DR. MADHUMANJARI MANDAL
Date: 22nd June, 2021
Place: KOLKATA

Stamp **Principal**
Scottish Church College
Kolkata



For ISTEAM Research Pvt. Ltd, India

Signature: G. George Panicker
Name: Dr. George Panicker
Date: 22nd Jun 2021
Place: Kolkata

Stamp:

