

**Quality Education Fund Thematic Networks – Tertiary Institutes (QTN–T)
(2022/23)**

Project Title:

**Integrated Self-directed Learning Approach to School-based STEM
Development (In-STEM)**

1. Support Service Coordinator

School-based Professional Support Section, Curriculum Support Division,
Education Bureau

2. Network Coordinating Organisation

Centre for Information Technology in Education (CITE), Faculty of Education,
The University of Hong Kong

3. Objectives

This project aims to provide support to teachers to enhance their capacity to integrate self-directed learning (SDL) into STEM education, develop and implement school-based STEM curriculum, and assess effectively students' learning outcomes so that students are facilitated to integrate and apply the knowledge and skills across different STEM disciplines, and develop entrepreneurial spirit, SDL and 21st century skills through scientific investigation and creative engineering design. The project targets at upper primary (P.4–6) and lower secondary (S.1–3) school students and develops multilevel school leadership networks so as to foster sustainable development of STEM education in participating schools.

4. Foci of Support

- To enhance teachers' understanding of STEM education and SDL so as to develop students' 21st century skills as well as STEM-related disciplinary knowledge and skills through classroom implementation
- To enhance teachers' mastery of related learning design, assessment and curriculum development strategies to implement STEM education through SDL
- To promote values education through STEM education
- To support teachers to design and implement STEM education using e-learning technologies, e.g. Learning Design Studio and iLap
- To provide feedback to teachers and school leaders on the level of their students' digital literacy achievement by using specifically designed and validated "Digital Literacy Assessment" instruments developed by the support team
- To facilitate collaboration among schools and scale up innovative practices through multilevel school leadership networks

5. Modes of Support

- On-site support, professional development and networking activities will be provided for the learning design of STEM education, school-based curriculum development and multilevel leadership capacity building
- School clusters for building networks and facilitating peer learning in the integration of SDL in STEM education among participating teachers

- Resource schools (i.e. ex-participating schools with rich implementation experience and expertise in STEM education will be invited to support the development of STEM education in participating schools through collaborative learning
- Technologies and related training for supporting teachers in learning design and knowledge management
- Participating schools will be connected with local industries and other STEM-related networks to broaden the horizon of teachers
- Award schemes to celebrate the success of students and teachers

6. Expectations on Participating Schools

- Participating schools support the integration of SDL into school-based STEM curriculum at upper primary (P.4–6) or lower secondary (S.1–3) levels
- Participating schools set up a core project team comprising at least one curriculum leader and three to four teachers from STEM-related subjects
- Teachers in the core project team collaborate with each other for curriculum design and implementation, peer lesson observation and reflection on practice
- Participating schools encourage the use of e-learning technologies to support SDL in STEM education
- Participating schools facilitate teachers to participate in project activities (through timetable scheduling, manpower planning, etc.)
- The core project team engage in evaluation and research of the project for project quality evaluation and feedback on their school's learning and development under the project
- Participating schools attend two Executive Committee (EC) meetings and an annual dissemination seminar to share the good practices generated and effective ways to cope with challenges encountered
- Participating teachers share with other teachers their experiences in school-based curriculum development and the materials and resources they develop, e.g. learning designs, design patterns, work plans, learning and teaching materials, research reports and student work (The copyright of these materials will be owned by the Quality Education Fund.)
- Participating schools observe strictly their legal obligations and, in all cases, comply with the Copyright Ordinance in developing school-based learning and teaching materials