

Quality Education Fund Thematic Networks – Tertiary Institutes (2023/24)

Project Title:

STEAM Education with Self-directed and Progressive Learning of Engineering Design Process for Problem-solving

1. Objectives

The project aims to develop secondary and primary school teachers' professional capacity in

- promoting STEAM education with a stronger linkage to the subject curricula
- enhancing the integration of STEAM-related disciplines using self-directed learning (SDL) as one of the major approaches
- exploring STEAM educational designs and holistic approaches with a focus to develop students' problem-solving skill through progressive learning of engineering design process (EDP)

2. Foci of Support

- To assist teachers in integrating SDL with curriculum-oriented cross-disciplinary STEAM education in secondary and primary schools
- To enrich teachers' knowledge in designing and implementing problem-based STEAM learning activities to promote students' problem-solving skills
- To enhance teachers' design of STEAM educational activities to facilitate students' learning and application of EDP for problem-solving
- To lead teachers to design cross-disciplinary STEAM learning activities that consolidate students' knowledge in STEAM-related disciplines
- To enhance the coordination of school curricula of various subjects relating to STEAM education across grade levels
- To help participating schools develop their school-based STEAM education curriculum based on the schools' missions and visions, resources and student characteristics
- To provide exemplars of STEAM education activities, including the learning and teaching materials, developed by other participating schools for teachers' reference

3. Modes of Support

- To build a STEAM education leadership community, which composed of curriculum leaders and teachers from participating schools, for developing quality STEAM education and facilitating professional exchange and experience sharing among the teachers in the community
- To organise professional development seminars and workshops for school leaders and teachers
- To coordinate and facilitate lesson observations cum post-lesson discussions in the school-network
- To provide on-site support, such as collaborative lesson planning and technical support
- To conduct surveys and focus group interviews with the participating schools to evaluate students' learning outcomes and the effectiveness of STEAM education

4. Points to note

- The duration of the support services normally lasts for one year

- Participating schools nominate one teacher-in-charge to liaise with the support team and the related Curriculum Development Officer
- Each participating school forms a core team of at least 2 – 3 teachers to work closely with the support team in areas such as needs analysis, professional development, lesson observations and post-lesson discussions
- Participating schools arrange regular timeslots for teachers concerned to attend meetings and participate in various professional development activities, e.g. collaborative lesson planning
- 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 schools collaborate with the support team to design curriculum-oriented, cross-disciplinary STEAM learning activities with a focus on applying EDP for problem-solving, and implement them in classrooms
- Participating schools organise one open lesson for teachers of other participating schools to observe
- Each participating school contributes to a resource pack by sharing one school-based curriculum unit together with the learning and teaching materials on STEAM education as an exemplar
- Participating teachers share with other teachers their experiences in school curriculum development and the materials and resources they develop, e.g. 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 should comply with relevant laws, such as compliance with the Copyright Ordinance in developing school-based learning and teaching materials
- Please visit the project website (<https://stemsdl23.eduhk.hk/>) and QEF website (<https://qcrc.qef.org.hk/en/fund/activity.php?cate=7>) for details

5. Support Service Coordinator

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