Gifted Education Fund: Off-school Advanced Learning Programmes

Programme No. 2020-01 (For secondary students)

Title of Programme	**Big Energy Data Collection and Analysis of Domestic Electric Energy Consumption**
Programme Provider	Department of Physics, Hong Kong Baptist University
Theme	STEM-related Mentorship Programme
Maximum No. of Participants and Class Level in the 2020/21 School Year	20 students (Secondary 4-5)
Pre-requisite	• Applicants should possess basic knowledge in app development and using mathematics software in coding; • Parents/ Guardians of applicants should agree to allow a qualified electrician arranged by the programme provider to install a smart energy meter at home. The energy consumption data recorded by the meter will be shared with other students anonymously. The meter will be removed by a qualified electrician at the end of the programme.
Programme Duration	About 8 months
Medium of Instruction	Course Material: English Class teaching/ Discussion: English supplemented with Cantonese
Objectives	• To enrich the knowledge of students in smart cities, Internet of Things (IoT) and efficient use of energy through authentic research of domestic electric energy consumption; • To enhance the skills of students in coding through developing a mobile application to monitor household electric energy consumption and other environmental data such as the temperature; • To equip students with first-hand experiences in big energy data retrieval, analysis and interpretation with a view to strengthening their problem-solving capability; and • To nurture positive values and attitudes among the students
Programme Outline*	This programme aims to enhance gifted students' knowledge, skills, and values and attitudes through engaging them in authentic big energy data research studies. The programme consists of four phases. Phase I • 2 lectures (3 hours each) on theories and demonstrations related to: - the key components of smart cities; - sensor operation principles and applications for smart cities;

	and - innovation technologies for development of green and smart cities Phase II • Installation of a smart energy meter by qualified electricians at each student's household and trial use of a mobile application by students to monitor the electric energy consumption at home. Phase III • 5 laboratory sessions (3 hours each; two classes with 10 students each) on the development of a mobile application by each student for the acquisition of meteorological/ weather information from the Internet as well as measurement and collection of data related to the students' own household consumption of electric energy. Phase IV • 6 laboratory sessions (3 hours each; two classes with 10 students each) on big energy data retrieval, analysis and integration by using appropriate mathematical tools; • Students will investigate and suggest energy saving strategies based on the results of data analysis. * In view of the COVID-19 epidemic, some sessions of the programme may be conducted online.
Admission Fee	Free of charge
Application Method	Application form can be downloaded from the following webpage: https://www.edb.gov.hk/en/curriculum-development/curriculum-area/gifted/ge_fund/gef/osalp.html Please complete the application form and send it by post on or before 15 April 2021 (now extended to 30 April) to the following address: Department of Physics 9/F, Cha Chi-ming Science Tower Ho Sin Hang Campus Hong Kong Baptist University 224 Waterloo Road Kowloon Tong (Attn: Dr CHAN Mau-hing)
Documents to be Submitted along with the Application	• Record of participation in training courses on mobile application development and computer programming (if any)
Enquiry	Dr CHAN Mau-hing (Department of Physics, Hong Kong Baptist University)

	Tel No.: 3411 5176 Email: mhchan@hkbu.edu.hk
Date of Announcement of Result	By May 2021 (tentative)

Gifted Education Fund: Off-school Advanced Learning Programmes

Programme No. 2020-02 (For secondary students)

Title of Programme	**Tomorrow's Leaders in Hong Kong Testing and Certification (T&C) Industry**
Programme Provider	Department of Chemistry, Hong Kong Baptist University
Theme	• STEM-related Mentorship Programme • Self-initiated Research Study
Maximum No. of Participants and Class Level in the 2020/21 School Year	18 students (Secondary 4-5)
Pre-requisite	Applicants should be studying Chemistry at HKDSE level or equivalent.
Programme Duration	About 12 months
Medium of Instruction	Course Material: English Class teaching/ Discussion: English supplemented with Cantonese
Objectives	• To promote the gifted students' interest in and enrich their knowledge of analytical sciences as well as the operation and latest developments of the testing and certification (T&C) industry in Hong Kong; • To equip students with essential skills in sample pre-treatment and analytical sciences; • To enhance students' capability of solving authentic problems related to analytical sciences; and • To nurture positive values and attitudes of the gifted students with an emphasis on integrity and ethics in their study and workplace
Programme Outline*	This programme aims to enhance the gifted students' knowledge and skills related to analytical sciences and increase their awareness and understanding of the T&C industry in Hong Kong. It also develops the integrity and ethics of the students to facilitate their growth and development. The programme consists of three phases. Phase I • 12 lectures (2 hours each) on analytical sciences; • 4 laboratory sessions (3 hours each) different sample pre-treatment and analytical methods; • A half-day visit to a relevant government body/ organisation/ testing laboratory; and • A one-hour seminar about the T&C industry by a guest speaker

	Phase II • 4 laboratory sessions (3 hours each) on different sample pre-treatment and analytical methods; • A half-day visit to a relevant government body/ organisation/ testing laboratory; • A one-hour seminar about the T&C industry by a guest speaker; and • Literature research on a topic chosen by the students with biweekly meetings with their mentors Phase III • A half-day visit to a relevant government body/ organisation/ testing laboratory; • A one-hour seminar about the T&C industry by a guest speaker; • A two-day day camp at HKBU with activities including a campus tour, science talks, demonstrations, workshops, values education activities, viz. "Trails of Integrity and Ethics" and reflective sharing sessions; and • A one-month internship/ research placement for 6 students with outstanding performance in a testing laboratory for practical experience or in a research laboratory for scientific research experience in analytical sciences * In view of the COVID-19 epidemic, some sessions of the programme may be conducted online.
Admission Fee	Free of charge
Application Method	Application form can be downloaded from the following webpage: https://www.edb.gov.hk/en/curriculum-development/curriculum-area/gifted/ge_fund/gef/osalp.html Please complete the application form and send it by post on or before 15 April 2021 (now extended to 30 April) to the following address: Department of Chemistry 8/F Sir Run Run Shaw Building Ho Sin Hang Campus Hong Kong Baptist University 224 Waterloo Road Kowloon Tong (Attn: Dr HO koon-sing)
Documents to be Submitted along with the Application	Nil
Enquiry	Dr HO Koon-sing (Department of Chemistry, Hong Kong Baptist

	University) Tel No.: 3411 6603 Email: grayhks@hkbu.edu.hk
Date of Announcement of Result	By May 2021 (tentative)

Gifted Education Fund: Off-school Advanced Learning Programmes

Programme No. 2020-03 (For secondary students)

Title of Programme	**AIoT Coding and Engineering Skills Education for Gifted Students**
Programme Provider	Department of Electrical Engineering, City University of Hong Kong
Theme	• STEM-related Mentorship Programme • Self-initiated Research Study
Maximum No. of Participants and Class Level in the 2020/21 School Year	100 students (Secondary 4-5)
Pre-requisite	Applicants with basic knowledge of computer programming language, e.g. Python, C/C++, Java and Javascript, are preferred.
Programme Duration	About 9 months
Medium of Instruction	Course Material: English Class teaching/ Discussion: English supplemented with Cantonese
Objectives	• To provide the gifted students with relevant mathematical foundation knowledge with applications to artificial intelligence (AI) domain; • To equip them with the engineering skills and experiences to develop the Internet of Things (IoT) devices; • To develop their hands-on and minds-on coding abilities and problem-solving skills to implement AI projects; • To develop their hardware engineering skills to design and evaluate the IoT devices; • To inspire the gifted students about the role and computation of the system on chip (SoC) and Integrated Circuit (IC) in AI; and • To promote their awareness of the wide applications of AIoT and relevant ethical issues, and enlighten them to explore applications that can help to solve problems for the well-being of mankind.
Programme Outline*	This programme aims to enhance the gifted students' knowledge and skills related to AI and IoT, with a wide coverage of relevant mathematical knowledge, software programming and hardware programming skills as well as the skills related to engineering design and evaluation. Ethical use of AI is also emphasised in this programme for development of values and attitudes among the gifted students. The programme consists of five phases. Phase I

	• Online/ face-to-face sessions (20 hours in total) • Students will acquire knowledge of Python programming and learn to create a Github repository. Phase II • Lectures and laboratory sessions (16 hours in total) • Students will learn the history and development of AI and machine learning and build their own convolutional neural network model using the Fashion MNIST dataset. Phase III • Lectures and laboratory sessions (12 hours in total) • Students will apply their Python coding skills to programme an FPGA to accelerate AIoT applications, e.g. image recognition using a PYNQ board. Phase IV • Lectures and a laboratory session (8 hours in total) on Printed Circuit Board (PCB) design for creation of the extension board for the PYNQ board. • Students will meet their mentors biweekly in groups of two for the project (1 hour each; 4 times in total). Phase V • A one-day exhibition for students to showcase their achievements in learning through project presentation and experience • Self-documentation of students' project results and learning experience through report writing. * In view of the COVID-19 epidemic, some sessions of the programme may be conducted online.
Application Method	Application form can be downloaded from the following webpage: https://www.edb.gov.hk/en/curriculum-development/curriculum-area/gifted/ge_fund/gef/osalp.html Please complete the application form and send it by post on or before 15 April 2021 (now extended to 30 April) to the following address: Department of Electrical Engineering City University of Hong Kong Tat Chee Avenue Kowloon Tong (Attn: Dr Ray CHEUNG Chak-chung)
Documents to be Submitted along with the Application	• Evidence of Other Learning Experiences (if any)

Enquiry	Dr Ray CHEUNG Chak-chung (Department of Electrical Engineering, City University of Hong Kong) Tel No.: 3442 9849 Email: r.cheung@cityu.edu.hk
Date of Announcement of Result	By May 2021 (tentative)

Gifted Education Fund: Off-school Advanced Learning Programmes

Programme No. 2020-05 (For secondary students)

Title of Programme	**Entrepreneurial STEM Programme**
Programme Provider	Hong Kong Cyberport Management Company Limited (Supporting organisation: Jumpstart Media Limited)
Theme	• STEM-related Mentorship Programme • Apprenticeship and Entrepreneurship Programme
Maximum No. of Participants and Class Level in the 2020/21 School Year	20 students (Secondary 4-5)
Pre-requisite	No special background knowledge or skills are required.
Programme Duration	About 4 months
Medium of Instruction	Course Material: English Class teaching/ Discussion: English
Objectives	• To inspire gifted students and develop creativity by allowing them to explore creating and running their STEM-focused start-up companies; • To enhance students' understanding of STEM start-ups in Hong Kong and the steps of starting a STEM-focused business; • To equip them with essential skills in generating ideas, problem solving and execution through engagement in STEM-focused entrepreneurship; • To allow the outstanding students to gain authentic experiences in STEM start-ups through a full-time internship in a firm/ organisation; and • To develop their values and attitudes related to entrepreneurship spirit, perseverance, responsibility, etc.
Programme Outline*	This programme gives gifted students an opportunity to explore creating and running their own STEM-focused start-up companies. Students will go through the steps of brainstorming, product-market fit, marketing, scaling, leadership, etc. The students will expose themselves to STEM-related entrepreneurship through experiential learning of the theories and practices related to STEM start-ups in Hong Kong and engagement in an internship programme. The programme will also nurture the values and attitudes of the students essential for their future development. The programme consists of five phases. Phase I

	• 2 classes (3.5 hours each) for ice-breaking, team building, programme introduction, goal setting, brainstorming and experience sharing by guest speakers. Phase II • 18 classes (3.5 to 4 hours each) on a range of hot topics such as start-up essentials, leadership skills, artificial intelligence (AI), smart cities, fintech, product development, revenue model/ pricing, pitching, market research, etc.; • case studies and "fire drills"; • site visits to start-up companies (e.g. Cyberport); and • discussion of start-up plan between the students and their mentors in weekly one-on-one consultation sessions Phase III • a rehearsal for the demo day on pitching techniques and presentation; and • a demo day for students to present their start-up plans to an audience Phase IV • The top three students will be given an opportunity for first pick in the list of internships. The best performer(s) will have an opportunity to publish an article on the online platform of the supporting organisation. Other students will also be assigned internships based on assessment results and their preferences. Phase V • Each student will write a report to reflect his/ her learning experiences. Debriefing sessions will be arranged to consolidate student learning * In view of the COVID-19 epidemic, some sessions of the programme may be conducted online.
Admission Fee	Free of charge
Application Method	Application form can be downloaded from the following webpage: https://www.edb.gov.hk/en/curriculum-development/curriculum-area/gifted/ge_fund/gef/osalp.html Please complete the application form and send it by post on or before 15 April 2021 (now extended to 30 April) to the following address: Jumpstart Media Limited 23/F On Building 162 Queen's Road Central, Hong Kong (Attn: Ms Relena SEI)

Documents to be Submitted along with the Application	• Please include the following in Part IV Student's Self-introduction of the application form: - Applicant's interest in the programme and areas of innovation and entrepreneurship • Evidence of Other Learning Experiences (if any)
Enquiry	Ms Relena SEI (CEO, Jumpstart Media Limited) Tel No.: 9258 9728 Email: relena@jumpstartmag.com
Date of Announcement of Result	By May 2021 (tentative)

Gifted Education Fund: Off-school Advanced Learning Programmes

Programme No. 2020-06 (For secondary students)

Title of Programme	**Too Small to Be Taken Seriously: Bacteria and Infections**
Programme Provider	Department of Applied Biology and Chemical Technology, The Hong Kong Polytechnic University
Theme	Self-initiated Research Study
Maximum No. of Participants and Class Level in the 2020/21 School Year	5 students (Secondary 4-5)
Pre-requisite	No special background knowledge or skills are required.
Programme Duration	About 15 months
Medium of Instruction	Course Material: English Class teaching/ Discussion: English
Objectives	• To broaden gifted students' knowledge of microbiology and increase their interest in microbiological research; • To develop their skills in microbiological research through investigating an authentic research problem in microbiology, and also skills related to scientific writing and presentation; • To enhance other generic skills such as critical thinking, creativity and collaboration; and • To develop positive values and attitudes among students with emphasis on the ethics and moral values of being a responsible researcher and microbiologist.
Programme Outline*	This programme aims to enhance the gifted students' knowledge of microbiology and develop their interest, skills, and values and attitudes related to conducting microbiological research. The programme consists of three phases. Phase I • 6 lessons (3 hours each) on the following topics: - introduction to microbiology and our society; - microbial physiology, metabolism and classification; - microbial growth and metabolism and classification; - bacterial interactions and functions in human body; - bacterial diseases; and - microbial control Phase II • 2 practical training sessions (3 hours each) on microbiological techniques:

	- Session 1: Aseptic and simple microbiological techniques - Session 2: Staining of microorganisms and biochemical tests • Each student will then propose and conduct an independent research project and have weekly consultation with their mentor. Phase III • Based on their research findings, students will each compile and submit a written report and deliver a seminar-style oral presentation to an audience that may consist of academics and postgraduate students of the department. * In view of the COVID-19 epidemic, some sessions of the programme may be conducted online.
Admission Fee	Free of charge
Application method	Application form can be downloaded from the following webpage: https://www.edb.gov.hk/en/curriculum-development/curriculum-area/gifted/ge_fund/gef/osalp.html Please complete the application form and send it by post on or before 15 April 2021 (now extended to 30 April) to the following address: Department of Applied Biology and Chemical Technology Room Y844, Block Y Lee Shau Kee Building The Hong Kong Polytechnic University 11 Yuk Choi Road, Hung Hom, Kowloon (Attn: Dr CHUA Song-lin)
Documents to be Submitted along with the Application	• Evidence of Other Learning Experiences (e.g. a photocopy of record of extra-curricular activities) (if any) • A photocopy of school report card (last two academic years) • Please include the following in Part IV Student's Self-introduction of the application form: - Statement of purpose (maximum 500 words)
Enquiry	Dr CHUA Song-lin (Department of Applied Biology and Chemical Technology, The Hong Kong Polytechnic University) Tel No.: 3400 8682 Email: song-lin.chua@polyu.edu.hk
Date of Announcement of Result	By May 2021 (tentative)

Gifted Education Fund: Off-school Advanced Learning Programmes

Programme No. 2020-07 (For secondary students)

Title of Programme	**Hong Kong in Depth: Innovative Media Production and Cultural Research Programme for Gifted Students**
Programme Provider	Centre for Learning Sciences and Technologies, The Chinese University of Hong Kong
Theme	Humanities and Social Science Research Programme
Maximum No. of Participants and Class Level in the 2020/21 School Year	32 students (Secondary 2-4)
Pre-requisite	No special background knowledge or skills are required.
Programme Duration	About 14 months
Medium of Instruction	Course Material: Chinese supplemented with English Class teaching/ Discussion: Cantonese supplemented with English
Objectives	• To provide an opportunity for gifted students to design and conduct in-depth cultural research based on an inquiry-based learning framework; • To enhance the students' self-regulation skills such as setting goals, adopting appropriate strategies, managing time and emotions properly, and evaluating their own learning outcomes effectively; • To nurture the creativity of students through the production of cultural tourism online packages with the use of innovative media; • To foster peer learning and team building through student collaboration; and • To promote affective education and strengthen the students' self-efficacy, engagement and growth mindset essential for personal development and contribution to the community.
Programme Outline*	This programme aims to enhance the gifted students' inquiry-based learning ability, develop their creativity, higher order thinking and self-regulation skills, and nurture values and attitudes essential for the personal growth and contribution to the community. The programme consists of two phases. Phase I on cultural research • Lectures (30 hours) on the following topics: - Cultural studies in Hong Kong (21 hours), e.g. history, culture, livelihood, ethnic groups, literature, art, architecture, etc.

	- Affective education (3 hours), e.g. self-awareness, self-management, responsible decision making, etc. - Research (6 hours), e.g. types of research and data, literature review, research methodologies, data collection and analysis, research ethics, how to set a research question, how to draft a research framework and a working schedule • A field trip (8 hours) (site of visit to be decided later) • Individual mentorship Phase II on cultural research in practice with innovative media • Lectures and training sessions (77 hours in total) on the following topics: - Cultural tourism (6 hours), e.g. in-depth tours and tourism packages, the market position of HK - Communication (9 hours), e.g. narrative and promotional writing skills, case study, cultural promotion through tourism package - Affective education (3 hours), e.g. social awareness, relationship management, team building - Innovative media (50 hours), e.g. cinematography, photography, Virtual Reality education software development tool, drone operation and filming, video and photo editing with the use of professional software - Tourist package (9 hours), e.g. expressing ideas through innovative media and technologies, media production planning • A field trip (8 hours) (site of visit to be decided later) • Students' independent study and creation (about 17 weeks in total) with individual mentorship and group mentorship • A closing ceremony to showcase students' achievement * In view of the COVID-19 epidemic, some sessions of the programme may be conducted online.
Admission Fee	Free of charge
Application Method	Application form can be downloaded from the following webpage: https://www.edb.gov.hk/en/curriculum-development/curriculum-area/gifted/ge_fund/gef/osalp.html Please complete the application form and send it by post on or before 15 April 2021 (now extended to 30 April) to the following address: Centre for Learning Sciences and Technologies The Chinese University of Hong Kong Shatin, New Territories (Attn: Mr Charles NG)

Documents to be Submitted along with the Application	• A photocopy of student's school report card for the last academic school year • Please include the following in Part IV Student's Self-introduction of the application form: - reasons for application; - interest in topics of research in cultural studies; - expectations of the programme; and - anticipated challenges encountered in the programme • Evidence of Other Learning Experiences (if any)
Enquiry	Mr Charles NG (Centre for Learning Sciences and Technologies, The Chinese University of Hong Kong) Tel No.: 3943 3298 Email: clst@fed.cuhk.edu.hk
Date of Announcement of Result	By May 2021 (tentative)

Gifted Education Fund: Off-school Advanced Learning Programmes

Programme No. 2020-08 (For secondary students)

Title of Programme	**Urban Ecology x GIS: Talent Education Programmes for Gifted Students**
Programme Provider	Outdoor Wildlife Learning Hong Kong Limited (Supporting organisation: Science Unit, Lingnan University)
Theme	• STEM-related Mentorship Programme • Humanities and Social Science Research Programme • Self-initiated Research Study
Maximum No. of Participants and Class Level in the 2020/21 School Year	32 students (Secondary 2-3)
Pre-requisite	No special background knowledge or skills are required.
Programme Duration	About 12 months
Medium of Instruction	Course Material: English supplemented with Chinese Class teaching/Discussion: Cantonese supplemented with English
Objectives	• To broaden and enhance gifted students' knowledge in ecology and biodiversity; • To develop students' research skills related to the plants, birds, insects, amphibians and reptiles in the urban areas and also the skills required to apply the geographic information systems (GIS) in collating and presenting ecological data and findings useful for conservation of the environment; and • To cultivate students' positive values and attitudes such as the roles of individuals in promotion of sustainable development, respect of life, appreciation of urban design, civic responsibility, etc.
Programme Outline*	This programme aims to enhance gifted students' knowledge of ecology and biodiversity and equip them with the skills to collect and analyse relevant first-hand data from field studies. Students will collaborate and establish a Geographic Information System (GIS) that documents and presents a picture to people of the ecology in the urban areas of this international city. They will also develop positive values and attitudes that foster the personal growth and the development of the community. The programme consists of five phases. Phase I • 7 core sessions (42 hours in total) on theories and applications related to ecology, biodiversity and GIS

	Phase II • In groups of 4, students will participate in a research study under the guidance of a mentor. They will explore and define research scope and direction, conduct literature review and submit a research proposal. • Led by the mentors, students will conduct field studies in groups of 4 (4 sessions, 4 hours for each session). • Students will take part in consultation sessions (2 sessions, 2 hours each) and, in groups of 4, meet the ecology experts and the mentors who will give advice and guide them to conduct the research study. • Students will meet with GIS instructors and learn how to make use of GIS in their research study (2 hours). Phase III • Students will survey and gather information and data for their research study (total no less than 24 hours in 4 months). • During the consultation sessions (2 sessions, 2 hours each), the ecology experts and their mentors will offer advices and guidance to the students on their research study. Phase IV • Students will practice using the GIS for data storage, presentation and analysis during the practical sessions (2 sessions, 2 hours each). • Based on the data, research findings and analysis, students will compile and submit a report for their research study, and publish a web-based ecology map (around 40 hours). Phase V • Students will showcase their learning outcomes and deliverables to the audience at a graduation ceremony cum sharing session by the end of the programme. * In view of the COVID-19 epidemic, some sessions of the programme may be conducted online.
Admission Fee	Free of charge
Application Method	Application form can be downloaded from the following webpage: https://www.edb.gov.hk/en/curriculum-development/curriculum-area/gifted/ge_fund/gef/osalp.html Please complete the application form and send it by post on or before 15 April 2021 (now extended to 30 April) to the following address: Outdoor Wildlife Learning Hong Kong Limited Room A8, 14/F

	Kwai Shing Industrial Building Phase 1 36-40 Tai Lin Pai Road Kwai Chung, New Territories (Attn: Ms Carrie CHEUNG)
Documents to be Submitted along with the Application	• Please include the following in Part IV Student's Self-introduction of the application form: - reasons for application; - knowledge about the ecology of Hong Kong; - nature/wildlife-related experience; and - past experience in relation to GIS (if any) • Evidence of Other Learning Experiences (if any)
Enquiry	Ms Carrie CHEUNG (Outdoor Wildlife Learning Hong Kong Limited) Tel No.: 3619 0626 Email: carriecheung@owlhk.org
Date of Announcement of Result	By May 2021 (tentative)

Gifted Education Fund: Off-school Advanced Learning Programmes

Programme No. 2020-09 (For secondary students)

Title of Programme	**Learn Microfluidics with Fun**
Programme Provider	Department of Biomedical Engineering, City University of Hong Kong
Theme	STEM-related Mentorship Programme
Maximum No. of Participants and Class Level in the 2020/21 School Year	3 students (Secondary 4-5)
Pre-requisite	No special background knowledge or skills are required.
Programme Duration	About 15 months
Medium of Instruction	Course Material: English Class teaching/ Discussion: English supplemented with Cantonese
Objectives	• To enrich gifted students' knowledge of microfluidics and microfabrication, and also relevant applications; • To equip students with the skills of using a computer-aided design (CAD) software to design and simulate a microfluidic gradient generator; • To provide opportunities for students to propose their microfluidic designs and prototype their devices, and acquire authentic research experience in the laboratory of the university; • To motivate the students and enhance their ability to discover, create and innovate as well as strengthen their problem-solving capability through student-led learning; and • To nurture positive values and attitudes of the students to cope with adversities and make good use of science and technology to benefit the people
Programme Outline*	This programme aims to enhance gifted students' knowledge and skills in microfluidics and microfabrication through engaging them in the design, fabrication, prototyping and development of their own microfluidic devices. The programme will also nurture positive values and attitudes among the students such as perseverance and caring for people through the learning process. The programme consists of five phases. Phase I • 4 lectures (3 hours each) on the following topics: - microfluidic and micro/ nanofabrication principles; - use of AutoCAD® and MATLAB® for simulation of designs

	Phase II • Independent project (weekly meetings). Students will design their own micromixer by applying micro and nanotechnology principles under guidance. Phase III • Hands-on workshops on device fabrication (a 3-hour session per week). Students will perform experiments in laboratories on photolithography, soft lithography and device assembly, and produce written reports. Phase IV • Hands-on workshop on device validation (a 3-hour session per week). Students will perform experiments in laboratories on the flow characterisation of the device, evaluation of device performance, immunostaining of cells and microscopy, and produce written reports. Phase V • A conference for students to report and showcase their designs and results obtained in the projects * In view of the COVID-19 epidemic, some sessions of the programme may be conducted online.
Admission Fee	Free of charge
Application Method	Application form can be downloaded from the following webpage: https://www.edb.gov.hk/en/curriculum-development/curriculum-area/gifted/ge_fund/gef/osalp.html Please complete the application form and send it by post on or before 15 April 2021 (now extended to 30 April) to the following address: Department of Biomedical Engineering City University of Hong Kong Tat Chee Avenue Kowloon Tong (Attn: Dr KHOO Bee Luan)
Documents to be Submitted along with the Application	• Evidence of Other Learning Experiences (if any)
Enquiry	Dr KHOO Bee Luan (Department of Biomedical Engineering, City University of Hong Kong) Tel No.: 3442 9423 Email: blkhoo@cityu.edu.hk

Date of Announcement of Result	By May 2021 (tentative)

Gifted Education Fund: Off-school Advanced Learning Programmes

Programme No. 2020-11 (For secondary students)

Title of Programme	**Nurturing Gifted Students to Be Entrepreneurs in STEM Industry**
Programme Provider	Department of Decision Sciences and Managerial Economics, The Chinese University of Hong Kong (Supporting organisations: The Hong Kong Academy for Gifted Education and Preface Holdings Limited)
Theme	STEM-related Mentorship Programme
Maximum No. of Participants and Class Level in the 2020/21 School Year	50 students (Secondary 3-5)
Pre-requisite	Applicants should possess basic computer programming knowledge.
Programme Duration	About 8 months
Medium of Instruction	Course Material: English supplemented with Chinese Class teaching/ Discussion: Cantonese supplemented with English
Objectives	• To equip gifted students with the essential technology and business knowledge to pave ways for them to become successful entrepreneurs in future careers; • To enhance the ability of gifted students to integrate technology and business knowledge to solve authentic problems in different business and social settings; • To enhance the confidence of students via experiential learning by providing opportunities for students to deal with complicated scenarios in the real world; • To increase gifted students' awareness of the impact of technology on society so that they may start their life planning as soon as possible; and • To nurture the values and attitudes essential for the personal growth of the gifted students such as business ethics, social awareness, sense of corporate social responsibility and integrity
Programme Outline*	This programme aims to unleash the potential of gifted students and enable them to more readily apply business and technology knowledge and skills in the real world when they pursue their further studies and careers. The programme will also nurture values and attitudes essential for personal growth and development of the students. The programme consists of three phases. Phase I: Understanding Artificial Intelligence (AI) and business skills for entrepreneurs

	• An open ceremony (2 hours)
	• 32 hours of lessons (2 hours for each class) on
	  - understanding AI; and
	  - business skills training for entrepreneurs
	• A visit to an AI firm (2 hours);
	• 4 sharing sessions with practitioners (2 hours each);
	• Phase I task: analysis of a start-up;
	• Mentorship from instructors and student facilitators (via chat group and tutorials);
	• Infusion of affective education in various parts of this phase
	
	Phase II: Data analysis
	• Training classes on AI (12 lessons; 2 hours each) covering data analytics and computational thinking process with hands-on experiences in real life scenarios
	• Phase II task: an application of an AI program in a real scenario;
	• Mentorship from experts and student facilitators;
	• Infusion of affective education in various parts of this phase
	
	Phase III: Be an entrepreneur
	• Training classes on writing proposals (6 lessons; 2 hours each) covering project introduction, proposal composing skills, budgeting and financial issues;
	• Visits to 2 NGOs/firms (2 hours each);
	• A presentation session/ closing ceremony (2 hours) for students to present their ideas on stage;
	• Phase III task: proposal and pitch;
	• Mentorship from instructors, experts and student facilitators;
	• Affective education on corporate social responsibilities, appreciating, respecting others, accepting one's own limitations, collaborating skills, etc.
	
	* In view of the COVID-19 epidemic, some sessions of the programme may be conducted online.

Admission Fee	Free of charge
Application Method	Application form can be downloaded from the following webpage: https://www.edb.gov.hk/en/curriculum-development/curriculum-area/gifted/ge_fund/gef/osalp.html Please complete the application form and send it by post on or before 15 April 2021 (now extended to 30 April) to the following address: Department of Decision Sciences and Managerial Economics 9/F, CYT Building The Chinese University of Hong Kong Shatin, New Territories

	(Attn: Ms Phoebe YUEN)
Documents to be Submitted along with the Application	• Please include a one-page summary in 500 words in Part IV Student's Self-introduction of the application form that includes the following: - reasons for applying for this programme - subjects that the student is currently taking - computer knowledge and skills
Enquiry	Ms Phoebe YUEN (Department of Decision Sciences and Managerial Economics, The Chinese University of Hong Kong) Tel No.: 3943 6014 Email: phoebe.yuen@cuhk.edu.hk
Date of Announcement of Result	By May 2021 (tentative)

Gifted Education Fund: Off-school Advanced Learning Programmes

Programme No. 2020-12 (For secondary students)

Title of Programme	**Maritime History and Curating**
Programme Provider	Hong Kong Maritime Museum (HKMM)
Theme	• Humanities and Social Science Research Programme • Self-initiated Research Study
Maximum No. of Participants and Class Level in the 2020/21 School Year	20 students (Secondary 3-4)
Pre-requisite	Applicants should perform well in cultural/ Science/ Chinese language/ English language subjects in schools and master basic computer application skills.
Programme Duration	About 9 months
Medium of Instruction	Course Material: Chinese supplemented with English Class teaching/ Discussion: Cantonese supplemented with English
Objectives	• To enrich the gifted students' knowledge on maritime history and worldwide ship building industry in ancient times; • To enhance students' academic writing skills and develop their creativity, problem solving skills as well as ability to react to challenges through a variety of curatorial training activities; and • To nurture among gifted students' positive values and attitudes such as caring about cultural heritage conservation, willingness to shoulder civic responsibility, a sense of belonging to the community, as well as appreciation of and respect for different cultures
Programme Outline*	This programme aims to enhance gifted students' knowledge on maritime history and curating, develop their generic skills and nurture their positive values and attitudes essential for personal growth and all-round development. The programme consists of two phases. Phase I • An orientation session (2 hours) that comprises: - An introduction to the learning and teaching activities and tasks to be completed - Ice-breaking activities and grouping to facilitate later mentorship process • Knowledge enrichment lectures and workshops (6 sessions; 2 hours each) on the following topics:

	- Maritime history and maritime trade in ancient Asia, Islamic world and Europe - Techniques of ship construction from the past to the present - An introduction to curating and the roles of curators - Enquiry-based writing skills - Academic writing skills - Features of the permanent exhibition of HKMM Phase II • Practicum at the HKMM (6 sessions; 3 hours each) on the following topics: - Curatorial training - Storytelling workshop - Oral presentation on physical and virtual exhibition • In groups, students will meet their mentors who will give them guidance and advice on a research topic and construction of exhibits/ an exhibition corner. (7.5 hours/month; 30 hours in total). • A maritime history and curating competition will be held for 2 weeks in Nov 2021 (tentative) for the gifted students to showcase their learning outcomes and achievements. • Students will need to submit a research paper, relevant models/ exhibits and a piece of reflection on their learning experience by the end of the programme. * In view of the COVID-19 epidemic, some sessions of the programme may be conducted online.
Admission Fee	Free of charge
Application Method	Application form can be downloaded from the following webpage: https://www.edb.gov.hk/en/curriculum-development/curriculum-area/gifted/ge_fund/gef/osalp.html Please complete the application form and send it by post on or before 15 April 2021 (now extended to 30 April) to the following address: Hong Kong Maritime Museum Central Pier No.8 Hong Kong (Attn: Ms CHU Man-yin)
Documents to be Submitted along with the Application	• A photocopy of school report card for the last academic year • Evidence of Other Learning Experiences (if any)
Enquiry	Ms Crystal TONG (Education Officer, Hong Kong Maritime Museum)

	Tel No.: 3713 2533 Email: crystaltong@hkmaritimemuseum.org
Date of Announcement of Result	By May 2021 (tentative)

Gifted Education Fund: Off-school Advanced Learning Programmes

Programme No. 2020-13 (For secondary students)

Title of Programme	**Linguistic Training and Internship for Gifted Students**
Programme Provider	Department of Chinese and Bilingual Studies, The Hong Kong Polytechnic University (Supporting organisation: Department of English, The Hong Kong Polytechnic University)
Theme	Humanities and Social Science Research Programme
Maximum No. of Participants and Class Level in the 2020/21 School Year	20 students (Secondary 2-5)
Pre-requisite	Applicants should have a good command of the English Language.
Programme Duration	About 13 months
Medium of Instruction	Course Material: English Class teaching/ Discussion: English
Objectives	• To enhance the knowledge of gifted students in areas of language sciences; • To develop the students' analytic skills and research methods, and enable them to conduct a research project of their interest under mentorship; • To improve their interpersonal skills, including communication skills, problem solving skills and teamwork skills through their engagement with peers and mentors in an interdisciplinary, multi-cultural environment; and • To nurture positive values and attitudes among the students such as ethical issues in research, respect for different cultures, empathy, social responsibility, etc.
Programme Outline*	This programme aims to enhance the gifted students' knowledge of language sciences, strengthen their analytic skills as well as improve their research ability through a guided research with internship. The students will also develop positive values and attitudes useful for personal growth and future development. The programme consists of four phases. Phase I: General Introduction to Linguistics • 12 face-to-face lectures (weekly; 3-4 hours each) • Introduction to the theories and concepts of linguistics, e.g. phonetics, semantics and sociolinguistics. Phase II (a) Research in practice & Internship

	• 2-5 hours on a weekly basis in one semester or 2-4 weeks in an intensive manner over the summer/ winter vacation • Students will carry out a mini research project under the supervision and guidance of academics/ educators. Some may have the chance to interact with young researchers in other relevant linguistic projects administered by the programme provider. (b) Advanced Topics in Linguistics • 20 weekly face-to-face sessions (3-4 hours each) with a focus on the practical and ethical issues in conducting linguistics research. • Research methodology, academic writing and presentation skills, problem solving skills, etc. related to linguistics will be covered. Phase III: Student Conference • Students will meet their mentors in individual consultation sessions in preparation for a one-day student conference to be held in March 2022. Students will present their research results and answer enquiries from participants in the conference. Phase IV: Linguistics Olympiad Problem Creation Workshop • 6 face-to-face sessions (3-4 hours each) on design and solving linguistic problems that may appear in international linguistic competitions. • Students will learn how linguistics problems are created, the main principles and constraints associated with linguistics problems as well as the skills to solve linguistic problems. • Students will work in groups and create a linguistic problem for other groups to solve as a challenge. * In view of the COVID-19 epidemic, some sessions of the programme may be conducted online.
Admission Fee	Free of charge
Application Method	Application form can be downloaded from the following webpage: https://www.edb.gov.hk/en/curriculum-development/curriculum-area/gifted/ge_fund/gef/osalp.html Please complete the application form and send it by post on or before 15 April 2021 (now extended to 30 April) to the following address: CF701 Tang Ping Yuan Building The Hong Kong Polytechnic University 11 Yuk Choi Road, Hung Hom, Kowloon (Attn: Ms Tracy LUO Xin)

Documents to be Submitted along with the Application	• Application form (please complete part IV student's self-introduction in no more than 500 words in English); • Curriculum Vitae consisting of a summary of relevant qualifications, activities and achievements; • Certificate(s) in selection and/or participation in olympiad or other relevant local and international competitions; and • Certificate(s) of any participation/completion of gifted talent programme. • Please also email the programme provider (tracyxin.luo@polyu.edu.hk) the following information: - a short self-introduction extracted from part IV of the application form; and - a list of documents that have been sent by post along with the application form.
Enquiry	Ms Tracy LUO Xin (Department of Chinese and Bilingual Studies, The Hong Kong Polytechnic University) Tel No.: 3400 3823 Email: tracyxin.luo@polyu.edu.hk
Date of Announcement of Result	By May 2021 (tentative)