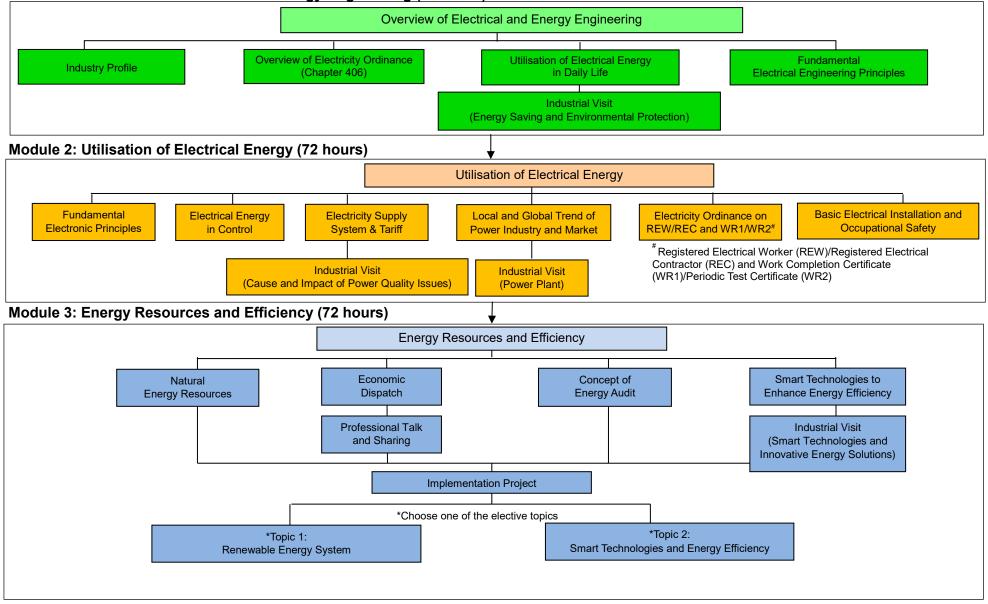
Applied Learning

2022-24 Cohort; 2024 HKDSE

Item	Description
1. Course Title	Electrical and Energy Engineering
2. Course Provider	Vocational Training Council
3. Area of Studies/ Course Cluster	Engineering and Production/ Civil, Electrical and Mechanical Engineering
4. Medium of Instruction	Chinese or English
5. Learning Outcomes	 Upon completion of the course, students should be able to: (1) analyse the general profile of the electrical and energy engineering industry, and its latest development; (2) apply the basic principles and techniques of electrical engineering, in particular the knowledge of energy efficiency enhancement to formulate engineering solutions; (3) integrate knowledge and skills in electrical and energy engineering industry, including work ethics and social responsibilities, occupational safety and sustainable development, as well as communication and problemsolving skills; (4) interpret the latest development and achievements in the related engineering fields; (5) demonstrate positive values and attitudes towards the electrical and energy engineering industry; and (6) develop self-understanding for further studies and career development in the related field.

6. Curriculum Map - Organisation and Structure

Module 1: Overview of Electrical and Energy Engineering (36 hours)



- 7. The Context
- The information on possible study and career pathways is provided to enhance students' understanding of the wider context of the specific Applied Learning course. Students who have successfully completed Applied Learning courses have to meet other entry requirements as specified by the institutions.
- The recognition of Applied Learning courses for admission to further studies and career opportunities is at the discretion of relevant institutions. The Education Bureau and the course providers of Applied Learning are exploring and seeking recognition related to further education and career development opportunities for students successfully completing the Applied Learning courses.

Further studies

e.g. electrical engineering, electronics engineering, building services engineering, mechanical engineering, environmental protection and management, environmental engineering and energy management

Possible further study and career pathways

Career development

e.g. positions at entry level (e.g. craft apprentice, technician apprentice, technical assistant, technician trainee, technical officer trainee, technician, technical officer, works supervisor, assistant inspector) and positions at managerial level (e.g. engineer, project engineer, project co-ordinator, chief technical officer, chief inspector, project manager)

Cluster of professions/trades/industries related to the course

electrical engineering, electronics engineering, building services engineering, mechanical engineering, environmental protection and management, environmental engineering and energy management

Future global and local outlook

- the Government has launched a long-term town planning "Hong Kong 2030+" in 2015 for the future sustainable development of Hong Kong and released the Smart City Blueprint which strive to build Hong Kong into a world class smart city, all these initiatives and projects will stimulate the demand of manpower in the building and construction related electrical and mechanical services trades; and
- in response to the increasing public concern over the innovation and technology, e.g. modular construction, enhancement of energy efficiency and the keen demand for labor, in particular the electrical and mechanical services industry, and the awareness of the Electricity Ordinance (Chapter 406) and the statutory requirement of the registered electrical workers and contractors

Beginners' skill set to facilitate entry to further studies and/or work

- understand the importance of abiding by ethical, social and legal requirements as well as work ethics and responsibilities
- demonstrate the knowledge and skills in electrical and energy engineering, including basic electrical and electronics principles, design and operation of sensing and control circuit for lighting and motor, and operating principles of electrical power generation, power transmission and distribution, energy efficiency, energy audit, renewable energy and sustainability
- apply engineering knowledge and skills to plan and design solutions for practical problems in electrical and energy engineering
- appreciate the phases of managing engineering projects
- demonstrate the ability to work effectively in a project team and finesse the communication skills in handling tasks of renewable energy or smart technology to enhance energy efficiency
- explore the aptitudes and abilities required in electrical and energy engineering industry, and develop a personal roadmap to articulate to different levels of qualifications

Foundation knowledge developed in junior secondary education and Secondary 4

The course is built upon the foundation knowledge students acquired in, e.g.

- **Technology Education** energy and energy resources
- Science Education electricity and magnetism
- ٠ Mathematics Education – data handling
- Chinese Language Education and English Language Education verbal and written communication

Relations with core subjects and other elective subjects

Enhancing and enriching, e.g.

enhancing the depth and breadth of studies in Physics (such as knowledge of electrical principles, electricity and motion, energy, energy efficiency and science principles) and Design and Applied Technology (such as knowledge of systems and control) through applying the knowledge of electrical and energy engineering

Cross-fertilisation, e.g.

consolidating and reinforcing the learning of this course and **Design and Applied** Technology by applying the common concepts of electrical theory

Expanding horizons, e.g.

students taking Personal, Social and Humanities Education Key Learning Area may broaden their knowledge in electrical and energy engineering

Consolidating and synergising students studies, e.g.

students undertake an in-depth study project on renewable energy or smart grid technology to consolidate the knowledge and skills developed in their prior learning

Relations with other areas of studies/ courses of Applied Learning

Business, Management and Law

the knowledge and skills of project management and problem-solving skills can enhance the learning in the area of **Business, Management and Law**

Creative Studies

the knowledge and skills of the control design and smart technology in energy management can reinforce the learning of design principles in the area of **Creative Studies**