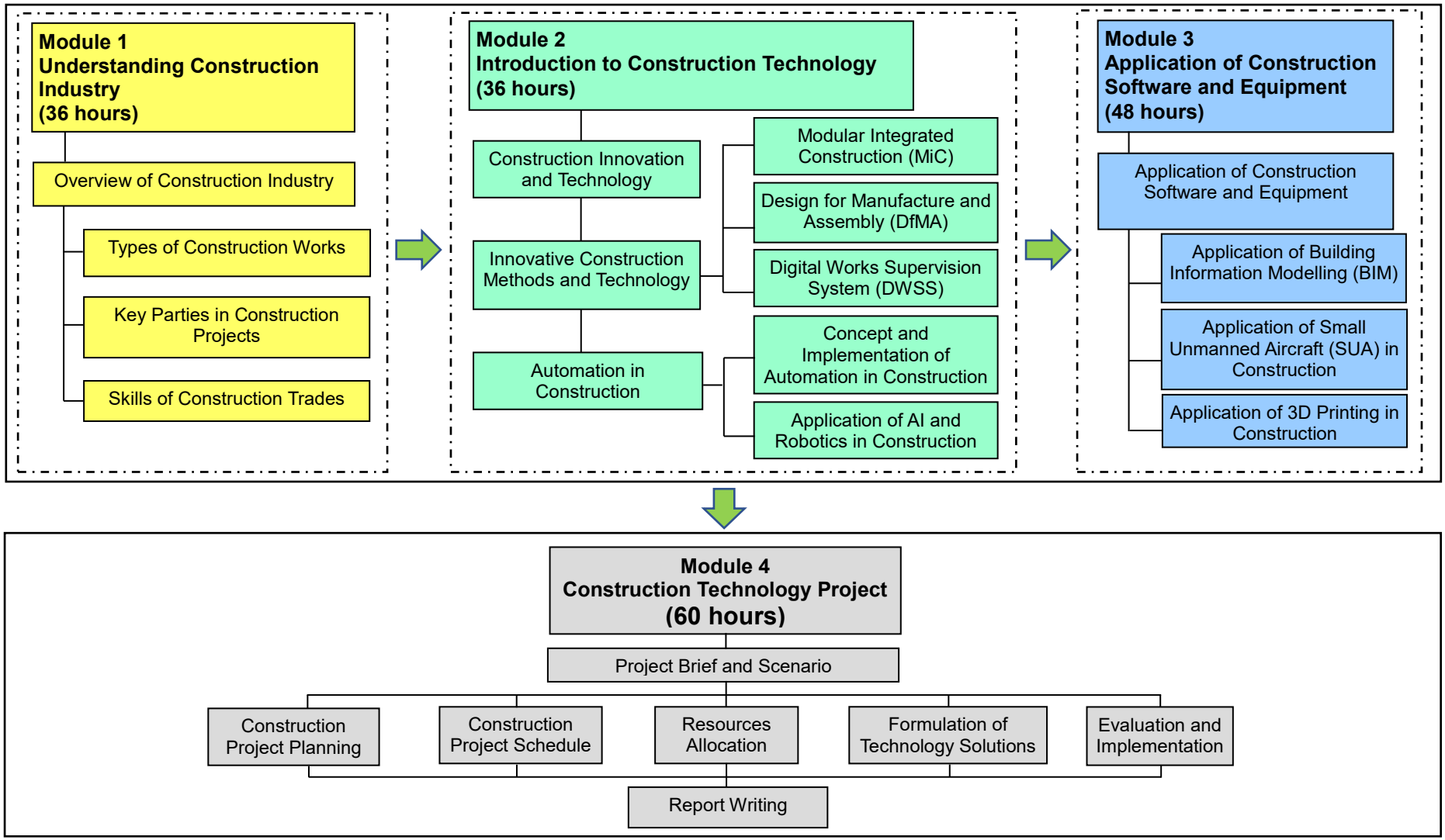
Applied Learning

2023-25 Cohort; 2025 HKDSE

Item	Description
1. Course Title	Digital Construction
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) describe the general environment of the construction industry; (2) recognise the latest development and achievements in construction technology; (3) apply the basic principles and techniques of construction technology to formulate engineering solutions; (4) integrate knowledge and skills in designing and implementing projects, including creative thinking, communication and problem-solving skills, and demonstrate a basic understanding of work ethics, occupational safety as well as sustainable development; (5) demonstrate positive values and attitudes towards the construction industry; and (6) develop self-understanding for further studies and career development in the related field.

6. Curriculum Map – Organisation and Structure



*Enrichment activities such as visits to construction related facilities, professional talks and sharing will be arranged during the course to enhance the learning experience of students.

7. The Context

- The information on possible further 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.

Possible further study and career pathways

Further studies

- e.g. architectural technology and design, architecture and interior design, surveying, civil engineering, project management, building services engineering, property and facilities management, environmental engineering, electrical and mechanical services engineering, building automation engineering

Career development

- e.g. architectural technician, BIM technician, interior designer, building inspector, surveying officer, project co-ordinator, facilities management officer, property management officer, building services engineering officer

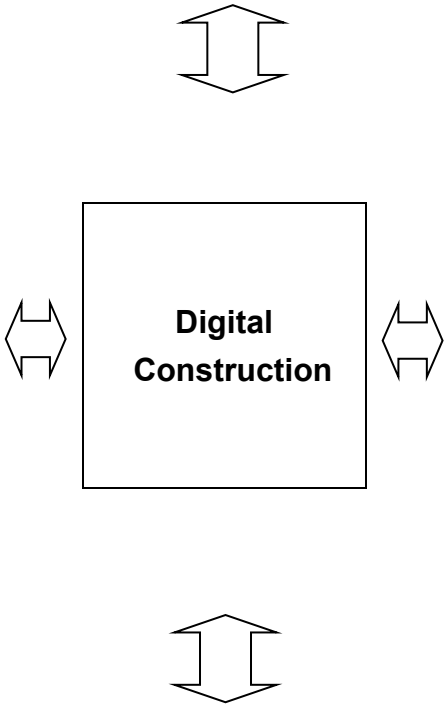
Relations with core subjects and other elective subjects

Enhancing and enriching**,** e.g.

- enhancing the depth and breadth of the subjects: **Design and Applied Technology** (such as construction design, systems and control); **Information and Communication Technology** (such as network management and programming); and **Physics** (such as construction method and energy efficiency in building) by applying the knowledge of architectural design, construction automation and innovative construction technology

Expanding horizons**,** e.g.

- students taking **Humanities subjects** may broaden their knowledge in construction technology and management



Relations with other areas of studies/ courses of Applied Learning

e.g.

Creative Studies

- the knowledge of construction design and technology can reinforce the learning of design principles in the area of studies of **Creative Studies**

Services

- the concepts of users-oriented and users' satisfaction can reinforce the learning in complaint handling and customer service in the area of **Services**

Business, Management and Law

- legal requirements in construction process and management can enhance the learning in the area of studies of **Business, Management and Law**

Foundation knowledge developed in junior secondary education

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

- **Technology Education** – use of information technology
- **Science Education** – energy efficiency
- **Mathematics Education** – data handling
- **Chinese Language Education** and **English Language Education** – verbal and written communication skills

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Learning and Teaching

Course Title	:	**Digital Construction**
Area of Studies	:	**Engineering and Production**
Course Provider	:	**Vocational Training Council**

In Digital Construction, student-centred learning and teaching activities are designed to enable students to understand fundamental theories and concepts, develop their generic skills, and address their career aspirations in digital construction and related field.

Different modes of activities are employed to provide students with a systematic understanding about the context (e.g. lectures and seminars on application of construction technology) and eye-opening opportunities to experience the complexity of the context (e.g. visits to construction related facilities as well as industrial talks).

Students acquire an understanding of the requirements, fundamental knowledge and skills essential for further learning within the area through learning-by-practising opportunities in an authentic or near-authentic environment (e.g. hands-on experience in construction technology solution development and construction innovation solution development).

Students are also encouraged to develop and apply conceptual, practical and reflective skills to demonstrate entrepreneurship and innovation. Students are given opportunities to integrate the knowledge and skills acquired and consolidate their learning (e.g. In the projects, students are expected to make use of the knowledge acquired and present their works in a systematic way. In the process, students apply practical skills at industry standard, apply problem-solving skills to tackle digital construction related issues with multi-disciplinary knowledge, and prepare writing reports and group presentation. During the project, students are also expected to demonstrate the positive values and attitudes required in the industry).

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Curriculum Pillars of Applied Learning in Context – Digital Construction

Through the specific contexts related to the course, students have different learning opportunities, for example:

1. Career-related Competencies

- describe the general environment of the construction industry, key parties and responsibilities in construction projects as well as demonstrate a basic understanding of work ethics of the construction industry;
- acquire practical knowledge related to construction technology;
- apply basic knowledge and skills (e.g. research, analytical and problem-solving skills) at different key stages of construction project cycle;
- demonstrate the ability to communicate and report;
- determine and evaluate achievable goals and boundaries in scenarios related to the construction technology application;
- explore the aptitudes and abilities should be acquired by personnel of construction industry, articulate to different levels of qualifications, and develop a personal development pathway; and
- understand the characteristics and major technologies of the construction industry.

2. Foundation Skills

- employ mathematical skills (e.g. measurement and scaling) of building information modelling during construction design process;
- express ideas in construction projects using appropriate terminologies;
- demonstrate effective communication skills in verbal and written forms in formulating construction technology solutions through group discussions, projects, presentations and critique; and
- apply information technology skills in basic construction design and management.

3. Thinking Skills

- demonstrate problem-solving and decision-making skills to provide appropriate solutions with consideration of stakeholders' requirements with basic construction design and application of construction technology;
- apply creative thinking skills by the "think-out-of-the-box" methods to formulate diversified design solutions;
- apply analytical skills (such as recognising what information is needed), locating and obtaining it from a range of sources and evaluating it; and
- evaluate the solutions of scenario based problems and make recommendations for further improvement.

4. People Skills

- demonstrate self-reflection skills upon receiving feedback from course tutors and classmates during various learning activities (such as class exercises, group discussion and presentation);
- demonstrate self-management skills in design project at different stages and presentation; and
- demonstrate interpersonal and collaborative skills through the construction technology project with brainstorming, group discussion and presentation.

5. Values and Attitudes

- respect the opinions and critique of others, and learn from mistakes;
- identify various legal and ethical issues (such as construction safety and work ethics), and show respect to others, social responsibility, law and authority as well as honesty and integrity;
- show enthusiasm, motivation and willingness to learn through learning-by-practising in the construction industry; and
- demonstrate self-confidence and sense of responsibility throughout the course of study.