

## Applied Learning

### 2023-25 Cohort; 2025 HKDSE

Item	Description
1. Course Title	Tech Basics
2. Course Provider	School of Continuing Education, Hong Kong Baptist University
3. Area of Studies/ Course Cluster	Engineering and Production/ Information Engineering
4. Medium of Instruction	Chinese or English
5. Learning Outcomes	<p>Upon completion of the course, students should be able to:</p> <ol style="list-style-type: none"> <li>(1) write simple computer programmes and applications by using a range of modern programming languages and software;</li> <li>(2) describe the latest emerging technologies in the information technology industry;</li> <li>(3) explain the basic concepts and functions of information technology;</li> <li>(4) describe technical and business knowledge in computer science, focusing on data analysis and cybersecurity;</li> <li>(5) demonstrate communication, collaboration and interpersonal skills in the technology field; and</li> <li>(6) develop self-understanding for further studies and career development in the related field.</li> </ol>

## 6. Curriculum Map – Organisation and Structure

### Module 1 Fundamentals of Information Technology (IT) (24 hours)



- Introduction to Emerging Technology
- Concepts of Software and Applications
- Data Analytics in Modern Organisations
- Evolution of Artificial Intelligence
- Basic IT Security and Threats
- Computer Ethics and Social Issues

### Module 2 Programming (39 hours)



- Introduction of Python Programming Language
- Basic Programming in Python
- Introduction to Data Science Programming
- Introduction to Game Programming

### Module 3 IT Project Management Skills (24 hours)



- Project Management
- Effective Communication
- Collaboration
- Leadership

### Module 4 Data Analysis and Database (30 hours)



- Data Analysis with Spreadsheet
- Data Modelling and Analysis with Relational Database Management Systems
- Introduction to NoSQL Database and Database Security

### Module 5 Application Development (39 hours)



- Fundamentals of Web Development using “HTML5”
- Interactive Web App Development using “JavaScript”
- Mobile App Development using “React”

### Module 6 Data Communications and Networking (24 hours)



- Network Fundamentals
- Switching and Routing Technology
- Infrastructure Services, Security and Management

## 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. data science, computer science, cybersecurity

#### **Career development**

- e.g. junior IT technician, data analyst, cybersecurity analyst

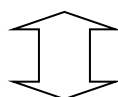
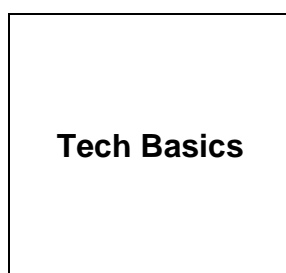
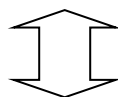
### Relations with core subjects and other elective subjects

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

- enhance students' learning in **Mathematics** through mathematical knowledge application in programming

#### **Expanding horizons**, e.g.

- students taking **Humanities subjects** can broaden their knowledge in information technology



### Relations with other areas of studies/courses of Applied Learning

e.g.

#### **Business, Management and Law**

- enhance students' understanding of technology application in different business sectors
- strengthen students' concept related to business ethics

#### **Services**

- develop and apply conceptual and practical skills of data analysis, and cybersecurity applications in service industry

### 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
- **Mathematics Education** – solving quantitative problems
- **Science Education** – analytical thinking and complex reasoning skills
- **Chinese Language Education** and **English Language Education** – verbal and written communication

## **Applied Learning**

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#### **Learning and Teaching**

**Course Title** : **Tech Basics**  
**Area of Studies** : **Engineering and Production**  
**Course Provider** : **School of Continuing Education, Hong Kong Baptist University**

In Tech Basics, 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 information technology.

Different modes of activities are employed to provide students with a systematic understanding about the context (e.g. lectures on emerging technology and basic programming applications) and eye-opening opportunities to experience the complexity of the context (e.g. company visits and mentorship).

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. practical learning sessions using industrial standard software).

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. conduct an integrated project that involves understanding a core problem and suggesting solution related to application development, data analysis or cybersecurity).

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#### Curriculum Pillars of Applied Learning in Context – Tech Basics

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

##### **1. Career-related Competencies**

- design and construct simple algorithms with modern programming languages involving basic data types, data structures and control structures;
- perform simple data manipulation and database operation using SQL;
- understand the software development cycle and methodologies (e.g. Waterfall model, Agile model);
- gain insights on the emerging technologies and how they will revolutionise society, with focuses on data analysis and cybersecurity;
- enhance understanding of industry requirements through practical exercises which are set according to the industry standard; and
- understand the future trend of information technology through visits, and sharing and lectures by industry practitioners.

##### **2. Foundation Skills**

- communicate concisely and effectively in both verbal and written forms in role play, case discussion, project presentation, written reports and interview simulations; and
- apply information technology skills in searching information online, case analysis and presentation.

##### **3. Thinking Skills**

- demonstrate the ability to simplify a complex problem by dividing it into smaller components using the design thinking process;
- develop analytical and critical thinking skills through project-based assignment which simulates real working environment;
- simplify a complex task by breaking it into more manageable parts;
- create lists of possible categories, alternatives, or constituent parts; and
- apply analytical skills in the social and ethical issues for technology field.

##### **4. People Skills**

- collaborate with team members to create clear and tangible goals;
- demonstrate the ability to motivate, inspire, and lead in a team;
- present with confidence;
- give and receive feedback appropriately; and
- delegate and share responsibility.

**5. Values and Attitudes**

- demonstrate an openness to new and contrary ideas;
- develop autonomy and take ownership of student's own learning;
- assume accountability/responsibility for mistakes and collaborate with team members to resolve them;
- demonstrate awareness of how their actions affect their team, their organisation, and the wider community; and
- appreciate and respect the uniqueness of others.