Applied Learning

2025-27 Cohort; 2027 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**	Upon completion of the course, students should be able to: (i) write simple computer programmes and prototypes by using programming languages and software; (ii) describe the latest emerging technologies in the information technology industry; (iii) explain the basic concepts and functions of information technology; (iv) describe technical and business knowledge in computer science, focusing on data analysis and machine learning; (v) demonstrate communication, collaboration and interpersonal skills in the technology field; and (vi) enhance self-understanding and explore directions on further studies and career pursuits.

6. Curriculum Map – Organisation and Structure

Module 1 (30 hours)
Fundamentals of Information Technology

- Introduction to emerging technology
- Data analytics in modern organisations
- Evolution of artificial intelligence
- Cybersecurity
- Computer ethics and social issues
- IT project management skills

Module 3 (36 hours)
Data Analysis and Big Data

- Data analysis with spreadsheet software
- Data analysis with relational database management system
- Introduction to big data and NoSQL database

Module 2 (39 hours)
Data Science Programming

- Introduction of Python programming Language
- Programming in Python
- Introduction to data science programming

Module 4 (36 hours)
Machine Learning for Data Science

- Introduction to machine learning
- Supervised learning
- Unsupervised learning

Module 5 (39 hours)
Data Science Project in Practice

- Fundamentals of data science
- Data preparation
- Data modeling and evaluation
- Data visualisation and storytelling skills

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.
- The recognition of Applied Learning courses for admission to further studies and career opportunities is at the discretion of relevant institutions. Students who have successfully completed Applied Learning courses have to meet other entry requirements as specified by the institutions.

Possible further study and career pathways

Further studies
- courses related to computer science, data analytics, artificial intelligence

Career development
- e.g. junior IT technician, programmer, data analyst

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Complementarity with core subjects and other elective subjects

Enhancing and enriching, e.g.
- enhance students' learning in **Mathematics** through mathematical knowledge application in programming
- apply knowledge (e.g. basic programming concepts) acquired in **Information Communication and Technology** enhances students' learning in both subjects

Expanding horizons, e.g.
- students taking Business, Accounting and Financial Studies can broaden their knowledge in data science and information technology
- students undertake in-depth IT-related project by integrating the knowledge and skills acquired in their prior learning

Tech Basics
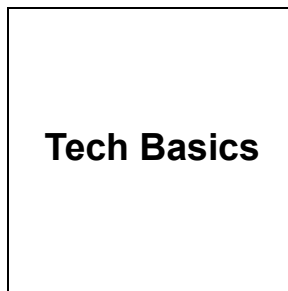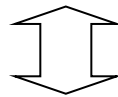
**Relations with other Areas of Studies/ courses of Applied Learning**

e.g.
Business, Management and Law
- enhance students' understanding of technology application in different business sectors
- strengthen students' concept related to business ethics

Services
- apply basic concepts and practical skills in the development and applications of data analytics and cybersecurity in service industry

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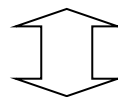
Foundation knowledge developed in junior secondary education

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

8. Learning and Teaching

In this course, 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 guest seminars).

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 contemporary standard software).

Students are given opportunities to consolidate their learning and demonstrate entrepreneurship and innovation (e.g. conduct an integrated project that involves understanding a core problem and suggesting solution related to machine learning and data science).

9.   Curriculum Pillars of Applied Learning

Through related contexts, students have different learning opportunities, for example:

(i)   Career-related Competencies
- design and construct simple programs with programming languages involving basic data types, data structures and control structures;
- perform simple data manipulation and database operation;
- gain insights on the emerging technologies and how they will change society, with focuses on data analysis and machine learning;
- 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 company visits and sharing by industry practitioners.

(ii)   Foundation Skills
- communicate concisely and effectively in both verbal and written forms in role play, case discussion, project presentation and written reports; and
- apply information technology skills in searching information online, case analysis and presentation.

(iii)   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.

(iv)   People Skills
- collaborate with team members to create clear and tangible goalsthrough group prototype making;
- demonstrate the ability to motivate, inspire and lead in a team through group project;
- collaborate with team members, give and receive feedback appropriately to solve problems through group activities; and
- delegate and share responsibility through team cooperation.

(v)   Values and Attitudes
- demonstrate an openness to new perspectives and contrary opinion through presentation of an emerging technology;
- develop autonomy and take ownership of student's own learning through practical assessment;
- cultivate a sense of responsibility to take ownership of mistakes and collaborate with team members to solve problems through machine learning prototyping; and
- appreciate and respect the uniqueness of others through group presentation.