

Applied Learning (Senior Secondary Level)

2020-22 Cohort

Learning and Teaching

Subject 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 (e.g. in web development and mobile application project, students develop a new or alternative method to solve a real-life problem or develop a prototype from a creative idea). 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 artificial intelligence, data analytics or cybersecurity).

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Curriculum Pillars of Applied Learning in Context – Tech Basics

Upon completion of the subject, students should be able to:

- write simple computer programmes and applications by using a range of modern programming languages and software;
- describe the latest emerging technologies in the information technology industry;
- explain the basic concepts and functions of information technology;
- describe technical and business knowledge in computer science, focusing on data analytics, cybersecurity and artificial intelligence;
- demonstrate communication, collaboration and interpersonal skills in the technology field; and
- develop self-understanding for further studies and career development in the related field.

Through the specific contexts related to the subject, 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;
- operate UNIX-based computer systems;
- perform system design and analysis based on basic knowledge of cloud technology, service and architecture;
- 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 artificial intelligence (AI), data analytics 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.