

Applied Learning (Senior Secondary Level)

2020-22 Cohort

Learning and Teaching

Subject Title : **Railway Studies**
Area of Studies : **Engineering and Production**
Course Provider : **Hong Kong College of Technology**

In Railway Studies, 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 the railway industry.

Different modes of activities are employed to provide students with a systematic understanding about the context (e.g. lectures on the overview of railway development) and eye-opening opportunities to experience the complexity of the context (e.g. visit to railway facilities and sharing by practitioners).

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. train driving simulation and practice in simulated work environment).

Students are also encouraged to develop and apply conceptual, practical and reflective skills to demonstrate entrepreneurship and innovation (e.g. group discussion to evaluate railway operations and analyse railway incident handling). Students are given opportunities to integrate the knowledge and skills acquired and consolidate their learning (e.g. in a group project students apply technologies to solve practical problems in railway; research on feasibility to adopt a new technology; and produce a preliminary design of a new metro line with appropriate technologies in a given city).

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Curriculum Pillars of Applied Learning in Context – Railway Studies

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

- describe the structure and stakeholders of the railway industry, the functions and operations of various components of railway systems and the latest trend in railway services development;
- explain the requirements for occupational health and safety related to the railway industry;
- outline the concepts, techniques and functions of technology and operations adopted in the railway industry;
- apply knowledge of railway operations and technology to analyse or solve problems relevant to the railway industry;
- demonstrate positive attitude, teamwork and communication skills required in the railway industry; 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**

- outline the development of operations and technology systems adopted in railway;
- discuss the complexity of an issue in railway industry by referring to structure, stakeholders and safety requirements; and
- demonstrate the understanding of competency requirements through practical exercises which are set according to the railway industry standards.

2. **Foundation Skills**

- enhance communication skills both in verbal and written forms through working on self-reflection report, presentation, role play and project reports;
- apply mathematical skills in preparing data for case study analysis; and
- apply information technology skills in research for projects.

3. **Thinking Skills**

- analyse the operation efficiency and future development of railway operation and technology systems based on given and self-fetched information with independent and critical thinking skills;
- apply innovative and creative thinking skills in providing suggestions to improve operational efficiency and customer experience satisfaction; and
- analyse technological problems logically.

4. People Skills

- demonstrate collaborative skills through sharing knowledge and ideas, solving problems and settling conflicts in group projects;
- demonstrate self-management skills through planning, implementing and evaluating project outcomes; and
- demonstrate team spirit and interpersonal skills in group discussions and group projects through handling conflicts and misunderstandings.

5. Values and Attitudes

- understand social responsibilities, professional ethics and attitudes in railway industry; and
- develop enthusiasm and plan for career in the industry and further studies.