<table>
<thead>
<tr>
<th>Subject Code</th>
<th>COMP 5328</th>
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<tbody>
<tr>
<td>Subject Title</td>
<td>Data Center Fundamentals</td>
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<tr>
<td>Credit Value</td>
<td>3</td>
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<td>Level</td>
<td>5</td>
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<tr>
<td>Pre-requisite/ Exclusion</td>
<td>Nil</td>
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### Objectives
The objectives of this subject are to enable students:

1. to understand the needs and business requirements for data centers including existing market in Hong Kong and in the region;
2. to become familiar with all aspects of a data center’s physical components (i.e. data center infrastructure) so as facilitate the design, management, support, and functioning in a data center;
3. to comprehend the key considerations in different aspects of the design of a data center;
4. to envisage the global trends for data center development and technologies.

### Intended Learning Outcomes
Upon completion of the subject, students will be able to:

a) Select data center services according to business needs and industry practice;
b) Understand different components configurations and their suitability for different needs and situations;
c) Comprehend the essential elements in a data centre network;
d) Calculate the Total Cost of Ownership of operating a data center;
e) Master the essence of different data center standards and requirements for relevant certifications;
f) Translate business needs to data center facility configurations that address business, financial, technology, regulatory, management, and operational needs;
g) Comprehend the landscape of data center technologies development and the possible evolution to data center design.

### Subject Synopsis/Indicative Syllabus
- An introduction to data center.
- Data center site selection and architectural requirements.
- Data center layout and space allocation.
- Data center power requirements and power system design.
- Data center air-conditioning requirements and air-conditioning system design.
- Data center network design principles, design, and cabling.
- Data center environmental monitoring and control systems.
- Data center security systems.
- Data center standards and certifications.
### Teaching/Learning Methodology

1. **Lecture:** students learn the requirements, technologies, concepts, tools, and standards related to data center build-out and network design.

2. **Tutorial:** students review design examples to identify shortcomings and resolutions as well as the use of appropriate tools that facilitate the design of various components in the data center.

### Assessment Methods in Alignment with Intended Learning Outcomes

<table>
<thead>
<tr>
<th>Specific Assessment Methods/Tasks</th>
<th>% weighting</th>
<th>Intended subject learning outcomes to be assessed</th>
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<tbody>
<tr>
<td>Assignments, Tests &amp; Projects</td>
<td>55</td>
<td><img src="https://example.com" alt="✓" /> <img src="https://example.com" alt="✓" /> <img src="https://example.com" alt="✓" /> <img src="https://example.com" alt="✓" /> <img src="https://example.com" alt="✓" /> <img src="https://example.com" alt="✓" /> <img src="https://example.com" alt="✓" /></td>
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<td>Final Examination</td>
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### Student study effort expected

**Class Contact:**

- Class activities (lecture, tutorial, lab) 39 hours

**Other student study effort:**

- Assignments, Quizzes, Projects, Exams 65 hours

**Total student study effort** 104 hours

### Reading list and references