## Subject Description Form

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>COMP1001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Title</td>
<td>Problem Solving Methodology in Information Technology</td>
</tr>
<tr>
<td>Credit Value</td>
<td>3</td>
</tr>
<tr>
<td>Level</td>
<td>1</td>
</tr>
<tr>
<td>Pre-requisite / Co-requisite / Exclusion</td>
<td>Nil</td>
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### Objectives
The subject aims to equip students with no prior experience on computer programming with fundamental computational and skills. In particular, the students will learn how to formulate solutions to computable problems and how to implement them in a high-level programming language.

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

- a. develop computer solutions to problems of low-to-moderate complexity and implement them using Python;
- b. acquire the basic Python programming skills to implement solutions using suitable data types and constructs.

### Subject Synopsis/Indicative Syllabus
1. Introduction to computational thinking
   Formulating problems for computers to solve them; logically organizing and analyzing data; representing data through abstractions; automating solutions through algorithmic thinking; implementing efficient solutions; generalizing the problem-solving process

2. Problem solving through Python
   Computing with numbers and strings; lists and files; functions; decision structures; loop structures and Booleans; data collections; graphic objects

3. Program design
   Problem analysis and specification; top-down design; bottom-up implementation

### Teaching/Learning Methodology
The 39-hour lecture will cover the main concepts and ideas in solving problems with computers and illustrate them using many examples. The students will also be given time to practice those concepts and ideas right away. The 12-hour laboratory will be used to mainly cover graphic objects and program design.
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 (Please tick as appropriate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Continuous Assessment (such as assignments, quizzes and mini-projects)</td>
<td>55%</td>
<td>□ a □ b</td>
</tr>
<tr>
<td>4. Examination</td>
<td>45%</td>
<td>□ a □ b</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td></td>
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Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

Assignments and quizzes are designed to help achieve learning outcome (b), whereas the two mini-projects are designed for achieving (a).

The examination will cover both (a) and (b).

Student Study Effort Expected

- **Class contact:**
  - Lecture: 39 Hrs.
  - Tutorial: 0 Hrs.
  - Laboratory: 13 Hrs.

Other student study effort:

- Self studying: 53 Hrs.

Total student study effort: 105 Hrs.

Reading List and References


