

# ICT101 Computational Thinking

**Level:** 1

**Credit Units:** 5 Credit Units

**Language:** ENGLISH

**Presentation Pattern:** EVERY REGULAR SEMESTER

## **Synopsis:**

ICT101 introduces computational thinking as an introductory computing course. It covers basic concepts of computational thinking, algorithmic thinking, data organisation, problem solving and decomposition, solution modeling as well as testing and evaluation. Students will learn foundational computer science concepts and fundamentals of programming. They will be able to apply the principles of computational thinking to solve problems within and across domains. The course combines theories and hands-on practices, so that students can obtain an in-depth understanding of the subject.

## **Topics:**

- Concepts of Computational Thinking
- Basic Operations of Computer
- Logical and Algorithmic Thinking
- Software and Programming Languages
- Data Organisation
- Basic Program Structure
- Defining Problems
- Problem Decomposition
- Abstraction
- Modelling Solutions
- Program Testing
- Solution Evaluation

## **Textbooks:**

Computational Thinking: A Beginner's Guide to Problem-Solving and Programming 2017 Karl Beecher  
BCS Learning & Development Limited  
ISBN-13: 9781780173665

**Learning Outcome:**

- Explain concepts of computational thinking
- Describe the importance of programming and algorithms
- Discuss data types and program structure
- Analyse solutions and evaluate quality
- Practice problem solving with decomposition, abstraction and modelling
- Demonstrate program testing and software debugging

**Assessment Strategies - Regular Semester (Daytime Class):**

<b>Components</b>	<b>Description</b>	<b>Weightage Allocation (%)</b>
Overall Continuous Assessment	PRE-CLASS QUIZ 1	2
	PRE-CLASS QUIZ 2	2
	PRE-CLASS QUIZ 3	2
	QUIZ 1	6
	TUTOR-MARKED ASSIGNMENT 1	18
Overall Examinable Components	Written Exam	70
<b>Total</b>		<b>100</b>

\*The information listed is subject to review and change.