

# INTRODUCTION TO PROGRAMMING, CERTIFICATE OF ACHIEVEMENT

---

## Financial Aid Eligible

The program provides students with foundational knowledge and hands-on practice across multiple programming paradigms and languages. Through coursework in HyperText Markup Language (HTML) and PHP, Hypertext Preprocessor, Java, Python, and core programming language concepts, students develop essential skills in web development, problem-solving, data structures, and object-oriented programming. This certificate prepares students for entry-level roles in software and web development or for continued study in advanced programming and computer science pathways.

## Program Learning Outcomes

1. Apply object-oriented programming principles to create modular, reusable, and well-structured software solutions.
2. Analyze and utilize fundamental data structures to solve computational problems efficiently and apply core concepts across programming languages.
3. Develop simple web-based applications by integrating client-side and server-side programming concepts learned through HTML, PHP, and JavaScript.
4. Use problem-solving and algorithmic thinking to design logical solutions and translate them into functioning programs across different platforms and languages.

| Course                  | Title                              | Units     |
|-------------------------|------------------------------------|-----------|
| <b>Required Core</b>    |                                    |           |
| Complete the following: |                                    |           |
| ICS C120                | Introduction to Programming        | 3         |
| ICS C123                | Fundamental Data Structures        | 3         |
| ICS C141                | Concepts of Programming Languages  | 3         |
| ICS C250                | Object-Oriented Programming        | 3         |
| or CIS C157             | Introduction to Python Programming |           |
| <b>Total Units</b>      |                                    | <b>12</b> |