# ITIS 141: PROGRAMMING FUNDAMENTALS

## Citrus College Course Outline of Record

| Heading | Value |
|---|---|
| **Effective Term:** | Fall 2021 |
| **Credits:** | 3 |
| **Total Contact Hours:** | 90 |
| **Lecture Hours :** | 36 |
| **Lab Hours:** | 54 |
| **Hours Arranged:** | 0 |
| **Outside of Class Hours:** | 72 |
| **Strongly Recommended:** | ITIS 115. |
| **Transferable to CSU:** | Yes |
| **Transferable to UC:** | No |
| **Grading Method:** | Standard Letter |

## Catalog Course Description

This course is an introduction to programming concepts using the JavaScript language. Emphasis is placed on good design techniques, coding, and documentation. Topics covered focus on variables, data types, operators, functions, decision making with control structure and statements, objects, events, iteration, forms, and error handling. This course is not for Computer Science majors. 36 lecture hours, 54 lab hours.

## Course Objectives

- identify basic programming concepts as well as JavaScript programming syntax
- understand basic problem solving techniques
- use JavaScript-defined data types and data structures
- test, and debug a program using sample data
- implement each of the following constructs in a program or in a series of programs: basic computation, simple I/O, conditional and iterative structures.

## Major Course Content

- Introduction to programming concepts and design
  - Programming Cycle: Requirements and Analysis
  - Program analysis
  - Flowcharting
- Introduction to JavaScript
  - Writing your first JavaScript program
  - Adding comments
- Using variables and variable tyes
  - Reserved words
- Using functions
  - Declaring functions
  - Calling functions
- Using data types and operators
  - Mathematical operators
  - Assignment operators
  - Comparison operators
  - Logical operators
- Using arrays
  - Defining and accessing arrays
- Conditional Statements and Loops
  - Using Control Structures and Statements
- Forms
  - Working with forms
  - Validating a user's input
- Working with objects
  - Defining objects
  - Creating objects
  - The document object
  - The window object
  - The string object
- Event handlers
- Debugging JavaScript
  - Basic debugging techniques
  - Error handling
  - Advanced debugging techniques

## Lab Content

1. Program definition
   a. Flowcharting
   b. Pseudo-code
   c. Algorithms
2. Coding and internal documentation
   a. Syntax
   b. Statements
   c. Comments
3. Variables and data types
   a. Defining variables
   b. Variable types
4. Operators
   a. Multiplicative operators
   b. Comparative operators
   c. Logical operators
   d. Assignment operators
5. Conditional Statements and loops
   a. If statements
   b. Else if and else statements
   c. While loops
   d. For loops
6. Objects
   a. Defining objects
   b. Object-oriented development
   c. Document object
   d. Browser object model
   e. Window object
7. Arrays
   a. Defining arrays
   b. Using arrays with loops
8. Forms

a. Accessing forms
b. Working with form information

## Suggested Reading Other Than Required Textbook

www.htdp.org (i.e., How to design programs), www.w3schools.com (i.e., Learn JavaScript), https://www.codeschool.com (i.e., JavaScript Language)

## Examples of Required Writing Assignments

Create an interactive program that will calculate the total cost of a customer's lunch order including the sales tax. Create an interactive program that will calculate the average rainfall over a seven-day period.

## Examples of Outside Assignments

Create a user interface to calculate the balance and minimum payment for a credit card statement. Using a conditional statement, determine the minimum payment allowed.
For example: The minimum payment should be the entire new balance if the new balance is $20 or less. Otherwise, the minimum payment should be $20 plus 10% of the amount of the new balance above $20.

## Instruction Type(s)

Lecture, Lab, Online Education Lecture, Online Education Lab