Course No.	Course Name	L-T-P-Credits	Year of Introduction
CS110	COMPUTER SCIENCE WORKSHOP	0-0-2-1	2015

Course Objectives

1. To familiarize students with basic hardware and software tools
2. To implement algorithms studied in the course Introduction to Computing & Problem Solving.
3. To learn the implementation of control structures, Iterations and recursive functions, Lists, Tuples and Dictionaries.
4. To implement operations of files.
5. To implement a small micro project using Python

List of Exercises / Experiments (Minimum of 8 mandatory)

List of Exercises:

Introduction: Familiarization of hardware components of a desktop computer (motherboard, cards, memory, slots, power, cables etc.) Familiarization of Operating systems and various tools, particularly those for scientific computing, open source tools etc.

Programming exercises in Python based on the course Introduction To Computing and Problem Solving (BE 101-05). The exercises may include programs using the following concepts–

1. **Decision making, branching and looping**
    1. Variables , Expressions & Conditional statements
    2. Iteration statements (While , For etc.)
2. **Function & Function calls**
    1. Function calls, Math functions
    2. Parameters and arguments
    3. Adding new functions, Recursion
3. **Strings**
    1. String traversal
    2. String searching, Comparison
    3. Other important String methods
4. **Lists, Tuples and Dictionaries**
    1. Traversing List, List Operations

2. Creation of Dictionary and Operations
3. Lists and Tuples

5. **Files and Operations**

1. Files - defining, opening/closing, operations
2. Pickling

6. **Micro Project**: Students are expected to do a micro project by using Python, preferably related to the Web

Expected outcome

1. Students are able to identify common hardware components and their purpose
2. Students gain sufficient awareness about latest software tools.
3. Students are able to develop programs in Python for common problems of reasonable complexity.