**Course Details:**

Title: Python Programming Essentials for Educators

Duration: 30 hours (divided into 15 sessions)

Location: Computer Laboratory, Kantipur Engineering College

Trainers:

- Rajesh Shah, Faculty Member

- Nishan Khanal, Faculty Member

**Course Outline:**

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| **Day** | **Topic** | **Learning Objectives** |
| 1 | Introduction | Introduction, Environment Setup, Data types |
|  |  | Variables, Built-in Functions |
| 2 | Operators, Strings | Assignment, Arithmetic, comparison, Logical |
|  |  | String creation, concatenation, formatting |
| 3 | Lists and Tuples | List operations |
|  |  | Tuple operation |
| 4 | Sets and Dictionaries | Set and Dictionary operations |
| 5 | Conditionals, Loops | if else, while, for, range function |
| 6 | Functions and Module | Creating function, arguments, return value |
|  |  | Creating module, Importing module/functions |
|  |  | Import Built-in modules |
| 7 | List Comprehension | List Comprehension, lambda function |
| 8 | Higher Order Functions | Map, filter, reduce, closures, decorators |
| 9 | Revision | Exercises on topics covered earlier |
| 10 | Python Errors, Date and Time | Error types |
|  | date and time data type |
| 11 | Exception Handling | Exceptions, packing and unpacking arguments |
|  |  | enumerate, spreading |
| 12 | Regular Expressions | re module, ReGex patterns |
| 13 | File Handling | opening files for reading, writing, updating |
|  |  | File types: txt, csv, json, |
| 14 | Python Package Manager, Classes and Objects | Installing packages using pip |
| Class, object, inheritance |
| 15 | Web Scraping | Project related to web scraping |

**Training Methodology**:

- Interactive lectures

- Hands-on coding exercises

- Group discussions and peer learning

- Real-world application based project