**Subject Name: Fundamentals of Programming with Python**

**Course code: DSC-C-ANP-232P**

**Credits: 4**

**Prerequisites**: Students should know the basic programming concepts of Python language.

**Objectives:**

**The aim of this course to enable students to:**

* Understand the basic building blocks of Flask.
* Understand core features of Flask such as URL routing, rendering, handling static assets of a web application.
* Learn to build modular applications and how to deploy them successfully.

**Content**

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| No | Particulars | Credit | Hours |
|  | Unit Title: Introduction to Flask  Introduction to: Flask, web framework, micro-framework, WSGI, Jinja 2, Setting up editor environment, setting up virtual environment, Functions as first-class objects and Decorators, Debugging, Routing, Dynamic routing, Forms, HTTP methods, Project Folder Structure, Static files, integrating Flask with front-end of the application, Error-handling. | 01 | 10 |
|  | Unit Title: Jinja Templates  Templates: Installation, Introduction to Jinja 2, Jinja Template variables, Jinja Template control statements, Jinja Template for loop, Jinja Template Inheritance, Jinja Template variable filters, URL building, rendering templates, Request object, Redirects and message flashing. | 01 | 10 |
|  | Unit Title: Flask SQLAlchemy  Flask SQLAlchemy Installation, Establishing Flask SQLAlchemy connection, configuration keys, Connection URI format, creating tables, Flask SQLAlchemy Creation, Read, Updating, Deletion operations, Querying records. | 01 | 10 |
|  | Unit Title: Git and GitHub  Version control using Git, create a code repository on GitHub. | 01 | 10 |

**Reference Books:**

* Miguel Grinberg, Flask Web Development: Developing Web Applications with Python, Latest Edition, O’Reilly.
* Malhar Lathkar, Building Web Apps with Python and Flask, Latest Edition, BPB.