Université de Dschang, IUT-FV de Bandjoun	Département de : Génie Informatique
Syllabus cours « Programmation IoT : Python ou C **» DUT GI2** GL & ISR**,**	**Année académique 2024-2025, Semestre LMD 4.**

I- Codification et volumes horaires du cours

Code : PIT40 **– Nombre de crédits: 2 – Volume horaire total : 20 CM 30h, TD/TP: 10h, TPE : 10h. Dispensé par Dr FOTSING Eric**

II- Objectifs du cours et compétences à acquérir par l'étudiant

The objective of this course is to use an interactive Python programming interface to develop IoT solutions, and Enterprise grade technologies.

Keywords :
- IoT,
- Python,
- Programming,
- Interconnection,
- Process,
- Datas.

III. Pré requis

RAS

IV- Descriptif séquentiel du cours magistral, des travaux dirigés et pratiques

1. Programming in Python language

- Basics of programming
- Python program structure
- Problem resolution

2. Python APIs

3. Use Python to

- Program the behavior of the IoT devices and to connect them to cloud services via APIs (Cisco Spark).
- Collect, Transform, analyze, and visualize data from the sensor and store them in SQL data bases.
- Create programs on the Raspberry Pi to provide IoT functionality.
- Create a data pipeline to acquire, manipulate and visualize sensor data.
- Conduct exploratory data analysis activities

4. Project-based skills

- Use Packet Tracer to model Python-based IoT systems
    - Low-Cost and Highly Efficient Automated Agribot using IoT
    - Implementation of Wireless Sensor Network for Real Time Monitoring of Agriculture
    - Wireless Automated Soil Monitoring System
    - Controlling Future Intelligent Smart Homes using Wireless Integrated Network Systems
    - An Intelligent Prediction of accidents for Domotics
    - Solutions de Sécurité pour l'Assistance à l'Autonomie à Domicile Development
    - An Effective Baby Temperature Monitoring System

IV- Quelques références utiles

Gastón C. Hilla, 2016.. Internet of Things with Python Interact with the world and rapidly prototype IoT applications using Python

Allen Downey, 2008. Think Python How to Think Like a Computer Scientist Version 1.1.20