VNICOM
TECH HUB

DATA SCIENCE

Become a Data Scientist
with Data Science

5 Month Curriculum (MICRO DIPLOMA)

SYLLABUS

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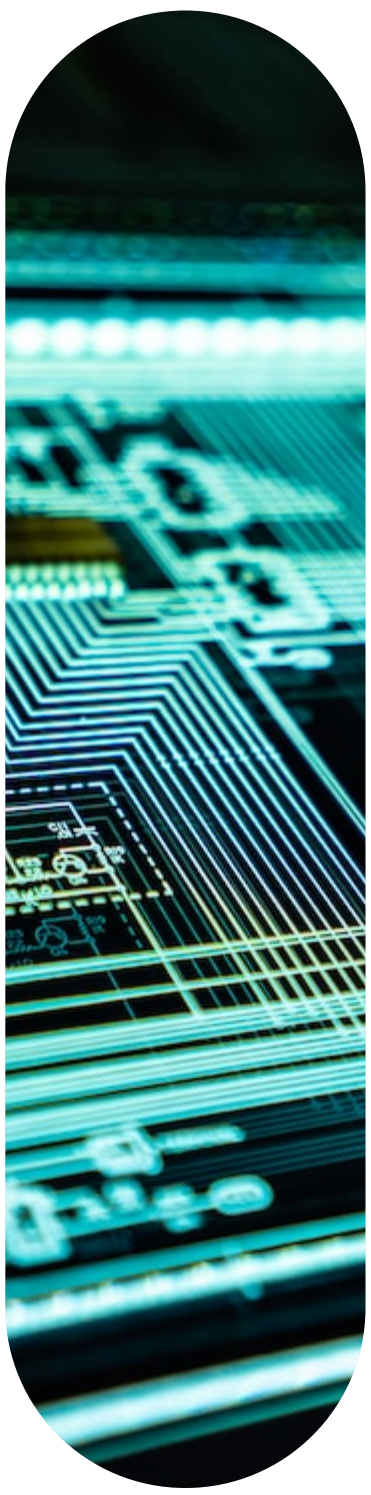

COURSE TITLE: DATA SCIENCE

DURATION: 5 MONTHS

WEEK 1: INTRODUCTION TO PYTHON

- Python syntax
- Python Variables
- Primitive Data types in Python
- Arithmetic
- Python Exercises

DATA VISUALIZATION - POWER BI

- Data Loading, Cleaning and Formatting in power BI
- Creating suitable visuals in Power BI
- Formatting Power BI Visuals

WEEK 2 : Conditional and Looping Constructs

- Logical Operators
- Conditional Statements
- Looping Construct
- Python Exercises

CREATING VISUALS IN POWER BI

- DAX formulas
- Columns and measures in Power BI

WEEK 3: PYTHON DATA STRUCTURES

- List and tupples and Sets
- Searching, sorting and manipulating
- Python Exercises

POWER BI GUIDED PROJECT

- Creating a fully fledged dashboard
- Data story telling

WEEK 4: PYTHON DICTIONARIES

- Dictionaries
- Working with CSV files
- Python Exercises

POWER BI UNGUIDED PROJECT

- Creating a Power BI project (collect data of your choice, clean it and create a compelling dashboard)
- Upload your dashboard to github

WEEK 5 : Python functions and classes

- Using inbuilt functions
- User defined functions in python
- Introduction to classes and objects
- Python Exercises

PYTHON CODING CHALLENGE

- Create account on Hackerrank
- Solve fifty selected challenges on each on the platforms

WEEK 6: PANDAS

- Importing data with pandas
- Dataframes and Series
- Useful pandas inbuilt function
- Statistics with pandas
- Accessing values in dataframes and series
- Slicing dataframes

WEEK 7 : PANDAS

- Filtering a dataframe
- Applying functions to dataframe
- Looping through a dataframe

WEEK 8 : PANDAS

- Combining multiple dataframes
- Exporting Data to CSV in pandas

SYLLABUS

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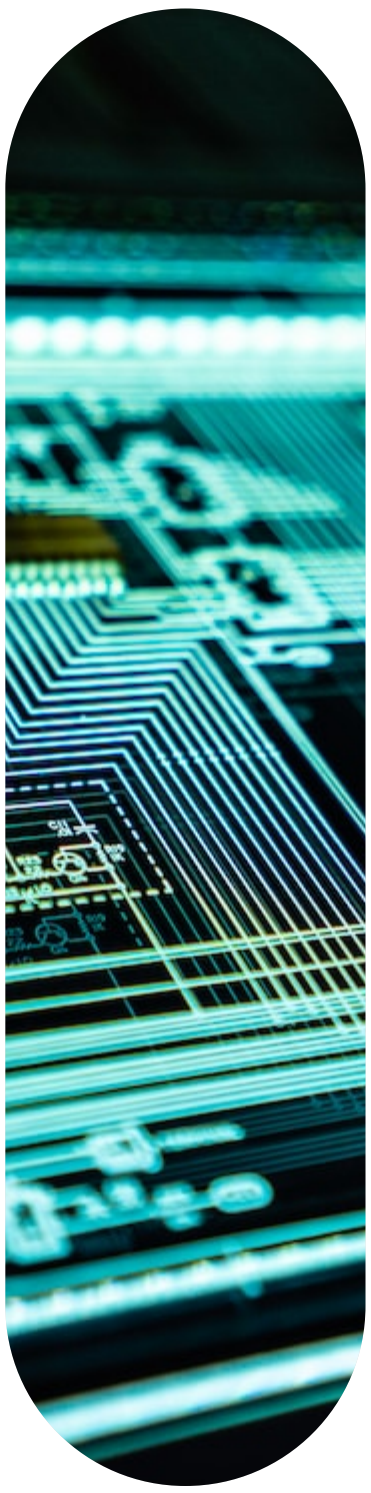

PANDA

- Data Manipulation with Pandas (Exercises)

WEEK 9 : NUMPY

- Creating Multi-dimensional Numpy arrays
- Accessing values in a Numpy arrays

DATA VISUALIZATION - SEABORN

- Scatter plot
- Line plot
- Hue, style and size
- Subplots
- Bar plots

WEEK 10 : NUMPY

- Performing calculations on Numpy
- Statistics with numpy

DATA VISUALIZATION - SEABORN

- Cat plot
- Box plot
- Violin plot
- Boxen plot

WEEK 11 : GUIDED PROJECT - EXPLORATORY DATA ANALYSIS

- Follow along to perform Exploratory Data Analysis on real life Data

WEEK 12 : UNGUIDED PROJECT - EXPLORATORY DATA ANALYSIS

- Build a portfolio project on Data Analysis
- Push the project to github

WEEK 13 : MACHINE LEARNING

- Introduction to Machine Learning
- Introduction to Sklearn
- Different tasks in Machine Learning

MACHINE LEARNING - DATA PREPARATION

- Importing Libaries and Datasets
- Handling Missing Data
- Handling Categorical Data
- Splitting the dataset into training and testing set

WEEK 14 : REGRESSION

- Simple Linear Regression
- Multiple Linear Regression
- Implementing on sklearn

REGRESSION

- Decision Trees
- Random Forest Regression
- Implementing on sklearn

SYLLABUS

WEEK 15 : MODEL DEPLOYMENT

- Introduction to Django
- Introduction to API
- Hosting your model as an API

EVALUATING A PREDICTION MODEL

- Evaluating and Optimizing prediction models using Sklearn

WEEK 16 : GUIDED PROJECT

- Follow along to make predictions on real life dataset

UNGUIDED PROJECT

- Make a project proposal
- Select dataset of your choice
- Make prediction with your dataset
- Host your model as an API
- Host your project on Github

Note: The best APIs will be hosted and featured on Vnicom Data Science projects collection

WEEK 17 : CLASSIFICATION

- Logistic Regression
- Support Vector Machine

CLASSIFICATION

- Decision Tree Classifiers
- Random Forest Classifiers
- XGBoost classifier

WEEK 18 : GUIDED PROJECT

- Creating and Evaluating a Classification Model

UNGUIDED PROJECT

- Make a project proposal
- Select dataset of your choice
- Make Class predictions with your dataset
- Host your model as an API
- Host your project on Github

Note: The best APIs will be hosted and featured on Vnicom Data Science projects collection.

WEEK 19 : GUIDED PRESENTATIONS

- Creating Presentation Slides for your Regression Task
- Creating Presentation Slides for your Classification Task

WEEK 20 : DELIVER YOUR PRESENTATION

- Each team will have 15min to deliver their presentation
- Each team will answer questions for 10min

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