DATA ANALYTICS SYLLABUS

CONTENT:

SECTION I

MICROSOFT EXCEL:

- Basic arithmetic operations in excel
- Understanding excel functions
- Splitting and combination of cells in excel
- Assignment
- Dropdown list building with excel
- Vlook-up and Xlook-up
- Pivot operations in excel
- Data visualization with excel
- Excel Project

SQL:

- Understanding Databases, Database management systems
- Understanding SQL (ess-que-ell)
- Explore information stored in a database (tables, columns, rows, etc.) using the graphical interface of SQL Server Management Studio
- MySQL/SSMS/SQLite
- Write SQL queries to retrieve data from tables in a database
- Assignment
- Primary SQL clauses including SELECT and FROM
- Filtering the results using WHERE, AND/OR, IN, and NOT
- Wildcard filters as well as mathematical comparisons like equals, greater than, less than, etc.
- Join Queries :

    - Combine information from multiple tables with inner JOINs
    - Learn to use Outer Joins and find NULL data
- Group data and perform common statistical calculations using Aggregate Functions
- Assignment
- Filter grouped data with HAVING
- Use CAST to make a data type fit your query's needs
- Work with dates and time
- SQL project

Power BI:

- Power BI project examples
- Getting started with Power BI
- Getting data into Power BI
- Data transformation
- Assignment
- Introduction to power query (M formula language)
- Data modelling
- Introduction to DAX (Data analysis expression)
- Assignment
- Data visualization
- Creating custom visuals
- Visual Interaction
- Exploring filters
- Creating custom slicers
- Exploring Power BI desktop features
- Power BI service features and Dashboard
- Natural language query and power BI publisher for excel
- Power BI project

PYTHON:

- Data analysis on Jupyter examples A
- Data analysis on Jupyter examples B
- Jupyter notebooks: installation, cells, importing and exporting data
- First steps with Python & Jupyter notebooks:
    - Arithmetic, conditional & logical operators in Python
    - Quick tour with Variables and common data types
- Assignment
- Next Steps with Python:
    - Branching with if, elif, and else
    - Iteration with while and for loops
    - Write reusable code with Functions
    - Scope of variables and exceptions
- Python Basics Practice:
    - Solve word problems using variables & arithmetic operations
    - Manipulate data types using methods & operators
    - Use branching and iterations to translate ideas into code
- Assignment
- Reading and writing data:
    - Introduction
    - CSV and TXT
    - From databases.
- Parsing HTML and saving data.
- Data cleaning:
    - Introduction

  - With data frames
  - Data cleaning duplicates
  - Data cleaning.
- Numpy:
  - Introduction
  - Arrays
  - Operations
  - Boolean arrays
  - Algebra and size
- Pandas:
  - Introduction
  - indexing and conditional selection
  - Dataframes
  - Conditional selection and modifying dataframes
  - Creating columns
- Python functions and Iterations.
- Visualization with matplotlib and Seaborn:
  - Basic visualizations with Matplotlib
  - Advanced visualizations with Seaborn
  - Tips for customizing and styling charts
  - Plotting images and grids of charts
- Python Modules.
- Python Project

- ✓ **COURSE PROJECT**
- ✓ **CERTIFICATION**

SECTION II

Schedule:

Monday: 3:00 – 6:00pm

Wednesday: 2:00 – 5:00pm

Saturday: 3:00 – 6:00pm

SECTION III

Academic Integrity Policy:

"Honesty in all academic work is expected of every student. This means giving one's own answers in all class-work without help from any outside source not approved by the instructor. Written material is to be the student's original composition. Appropriate credit must be given for outside sources from which ideas, language, or quotations are derived." As members of the academic community, students are expected to be responsible for all of their own academic work without dishonesty or deception; joint work is legitimate only when assigned or approved by the instructor. Violations of academic integrity include, but are not limited to, the following general categories:

- Using or obtaining unauthorized assistance in any academic work
- Using unauthorized sources.
- Representing someone else's work as your own.
- Providing unauthorized assistance to another student.
- Representing previously completed work as current.
- Forging a signature or falsifying or altering an academic or college record or document in any way.

Online Classroom Civility:

There are certain basic standards of classroom civility that should be adhered to in order to make the online classroom a pleasant

place for all involved. In an online setting, "classroom" means any public forums or chat sessions. It also applies to student to student and student to instructor communication. Civility does not eliminate appropriate humor, ‘enjoyment’, or other features of a comfortable and pleasant classroom community. Classroom civility examples include: displaying respect for members of the classroom community, both your instructor and fellow students; attentiveness to and participation in chat sessions, forums, and other classroom exercises. The student who do not behave in a civil fashion may pay a penalty.