Open Elective
Marketing Analytics using Python

COURSE CODE : U24ITOEP01 **COURSE CREDIT: 02**

1 credit - 15 lectures **1 lecture is 60 minutes**

Course Objectives:

- To introduce the fundamentals of marketing analytics using Python and EDA
- To Evaluate and Optimize Marketing Campaigns

Course outcome:

- Students will effectively use Python and key libraries for marketing data analysis and they will acquire data analysis skills
- Students will apply A/B testing, and optimize marketing campaigns using real-world case studies.

Unit	Topic	Hours
1	**Introduction to Marketing Analytics and Python** Introduction to Marketing Analytics: marketing analytics and its significance in modern marketing. Python for Marketing Analytics: Benefits of using Python for marketing data analysis. Brief about Python and essential libraries. **Data Acquisition and Cleaning** Data Sources: Identify common data sources for marketing campaigns (website analytics, social media data, CRM systems).Importing Data: Import data using pandas. Data Cleaning and Wrangling: Handle missing values, outliers, and data inconsistencies. **Exploratory Data Analysis (EDA)** Introduction to EDA: Understand the role of EDA in marketing analytics. Data Visualization: using seaborn and matplotlib. Descriptive Statistics: Calculate key metrics (click-through rates, conversion rates, customer acquisition cost).	**15**
2	**Customer Segmentation and Targeting** Customer Segmentation: Define segmentation and its benefits. Segmentation Techniques in Python: k-means clustering and RFM analysis. Analyze Customer Behavior: Study customer journeys, touchpoints, and purchase patterns. **Marketing Campaign Analysis** A/B Testing and Attribution: Learn A/B testing concepts and attribution models for campaign effectiveness. Advanced Python Libraries: Use scikit-learn for machine learning models to predict customer behavior and optimize campaigns.	**15**

Evaluation Pattern

Sr No	Course Assessment	Marks
1	Attendance and class participation	10
2	Presentation of Project	10
3	Develop a comprehensive marketing analytics project using Python to analyze a real-world marketing dataset and present actionable insights.	30

Resources:

Books:

- **Python for Data Analysis** by Wes McKinney (covers core Python libraries like pandas and NumPy)
- **Marketing Analytics** by Wayne L. Winston (marketing analytics fundamentals)
- **Data Science for Business** by Foster Provost and Tom Fawcett (covers data analysis techniques)
- **Hands-On Machine Learning with Scikit-Learn, Keras & TensorFlow** by Aurélien Géron (introduction to machine learning for marketing)
- **Marketing Analytics: A Practical Approach** by Stephan Maximilian Schmid (case studies and applications)

Online Resources:

- **DataCamp:** https://www.datacamp.com/tracks/marketing-analytics-with-python (Interactive tutorials and tracks for marketing analytics with Python)
- **Kaggle:** https://www.kaggle.com/ (Marketing datasets and competitions for practice)
- **Seaborn Documentation:** https://seaborn.pydata.org/ (Seaborn library documentation for data visualization)
- **Scikit-learn Documentation:** https://scikit-learn.org/ (Scikit-learn library documentation for machine learning)
- **Google Analytics Academy:** https://analytics.google.com/analytics/academy/ (Free courses on marketing analytics concepts)
- **Marketing Dive:** https://www.marketingdive.com/ (Articles and resources on marketing trends and best practices)