Course Code: SPE01 Units: 3 units

Course Name: Introduction to Data Analytics

Vision:

To be a leading Science and Technological Institute focused on producing competitive Filipino workforce contemporaneous with the discerned requirements of global business so as to aid in the national development and progress.

Mission:

ASIATECH shall provide relevant education with the standard of excellence aimed to ameliorate the life of people and the economy. It shall develop and implement curricula of various courses to generate highly skilled, innovative and productive citizens

Course Description:

This course introduces students to the foundational concepts and techniques of data analytics. It covers the complete data analytics lifecycle, including data collection, cleaning, exploration, analysis, visualization, and interpretation. Students will learn to work with real-world datasets using tools such as Microsoft Excel, Python, and business intelligence platforms like Power BI. Emphasis is placed on developing analytical thinking, interpreting results effectively, and presenting data-driven insights. The course also integrates essential discussions on data ethics, privacy, and responsible use of data in decision-making.

Course Learning Outcomes:
By the end of this course, students will be able to:

1. Explain the data analytics process and differentiate between types of data and analytics (descriptive, diagnostic, predictive, and prescriptive).

2. Collect and prepare datasets from various sources, ensuring data quality through cleaning, transformation, and validation techniques.

3. Apply statistical techniques (e.g., measures of central tendency, variability, correlation) to analyze and summarize data.

4. Use data analytics tools and languages, such as Excel, Python (Pandas, Matplotlib), and Power BI, to perform basic data analysis and visualization.

5. Design and interpret data visualizations (e.g., bar charts, scatter plots, histograms, dashboards) to effectively communicate insights to various audiences.

6. Identify ethical issues related to data privacy, consent, and bias, and apply responsible practices when collecting, analyzing, and sharing data.

Prelims Introduction to Data Analytics Types of Data, Analytics Lifecycle Data Collection and Sources Structured vs. Unstructured Data Data Preparation & Cleaning Missing values, outliers Descriptive Statistics Mean, median, mode, variance, SD	 Lecture Collect public dataset Clean messy datasets in Excel Compute Statistics in Excel
Midterms Data Visualization Basics Charts, Graphs, Data-Ink Ratio Exploratory Data Analysis (EDA) Introduction to Python for Data Analytics(Jupyter, Pandas)	 Create charts in Excel and Matplotlib EDA using Pandas and Power BI Load and analyze dataset
Pre-Finals Data Ethics and Privacy Data misuse, consent, GDPR Bias in Data & Algorithms Fairness, transparency Storytelling with Data Effective Communication Dash boarding and Reports Intro to Power BI / Google Data Studio	Case study analysis Reflective journal Peer critique of visualizations Create dashboard project
Finals **Inferential Statistics** Hypothesis Testing, t-test **Correlation and Regression** Simple Linear Regression	Regression analysis lab Lab: t-test using Python (Scipy)
Tools Needed: a. Google Colaboratory b. Microsoft Excel (for basic labs) or Google Sheet c. Orange Data Mining d. Power BI	

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