Degree Level: Undergraduate/baccalaureate or (post) graduate

Course Description:
This course is designed to strengthen students' technical and analytical skills while reinforcing core internal auditing concepts, equipping them to effectively manage and analyze data in a variety of assurance and advisory roles. As data becomes increasingly accessible across business functions, developing strong data analytics competencies is essential. The course encourages hands-on experience with tools such as Microsoft Excel, SQL, and Tableau, as well as emerging AI tools, and covers key topics, including data creation, sharing, analytics, mining, reporting, and storage within and across organizational contexts.

Sample Overall Learning Objectives:
1. Develop an understanding of key terms, concepts, methods, and tools used in data management and analysis within the context of assurance and advisory roles.
2. Acquire, transform, analyze, and visualize data using industry-standard software tools such as Microsoft Excel, SQL, Tableau, and emerging AI.
3. Apply data analysis techniques to identify, analyze, and solve problems, supporting effective decision-making in assurance and advisory services.
4. Strengthen critical thinking and problem solving skills through practical application of data analytics.

General Topic	Content Recommendations
Introduction to Data Analytics	• Key concepts and basic terminology • Overview of the data analytics process (i.e., data collection, cleaning, analysis, interpretation, reporting, and visualization) • Data governance, including ethics and data privacy ○ Ethical responsibility (i.e., validating data sources, maintaining data integrity, avoiding misuse of data, adhering to data privacy regulations, and being transparent about data/model limitations) • Role of data analytics in assurance and advisory services
Data Collection and Preparation	• Collecting data from various sources (e.g., retrieving relevant information through database queries) • Applying techniques to clean and transform data for analysis • Identifying and addressing common data quality and cleansing challenges
Data Analysis Techniques	• Structured data analysis (e.g., descriptive analytics, statistical analysis and modeling, multimodal) • Unstructured data analysis (e.g., multimodal analysis) • Advanced software tools (such as Python, R, and SAS) • Real-world use cases and audit scenarios using analytics
Data Visualization and Reporting	• Principles of effective data visualization • Creating dashboards and visual reports

General Topic	Content Recommendations
Trends and Emerging Technologies	• Basic automation with spreadsheet formulas and macros • Data modifying code (SQL) • Robotic process automation (RPA) • Use of artificial intelligence (AI) and machine learning in all four phases of an audit engagement: planning, fieldwork, reporting, and follow-up (AI to assist in the process or AI owning the process of data collection, analysis, judgment/decision, and reporting findings)