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المعهد الهندسي لخدمات التكنولوجيا والبرمجيات

Engineering office for Technology and Software Services

Statistics



Course Title: Statistics
Code: 29020-AUX

Introduction:

Statistics is the science of collecting, analyzing, interpreting, and presenting data. It provides essential tools for decision-making under uncertainty and supports scientific discovery across disciplines.

Main Branch: United building – E Shams –Front NBE
El Siouf _Alexandria
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🌟 Course Description:

This course covers both the fundamental and advanced concepts of statistics, including descriptive statistics, probability theory, inferential methods, and advanced modeling techniques. It is designed to build a strong foundation for applications in data science, research, and engineering.

🎯 Target Audience:

- Students and professionals in Mathematics, Data Science, Engineering, and Research.
- Analysts and decision-makers who require statistical insights.
- Anyone seeking to develop solid statistical reasoning skills.

📚 What You Will Learn:

- Summarize and visualize data using descriptive statistics.
- Understand and apply basic probability concepts.
- Perform statistical inference including estimation and hypothesis testing.
- Use advanced statistical techniques like ANOVA and statistical modeling.

👨‍🏫 Instruction Methodology:

- 📖 Theoretical Lectures with Practical Examples.
- 🏢 Hands-on Data Analysis Workshops.
- 💻 Software-based Analysis (Excel, R, or Python).
- 📁 Assignments and Case Studies.

🌱 Main Modules:

📊 Descriptive Statistics

- 📊 Measures of Central Tendency (Mean, Median, Mode)
- 📊 Measures of Dispersion (Variance, Standard Deviation)

🎲 Probability Theory

- 🎲 Random Variables
- 🎲 Probability Distributions (Binomial, Normal, Poisson)

📈 Statistical Inference

- 📈 Estimation Techniques
- 📈 Hypothesis Testing (Z-test, t-test, Chi-Square test)

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Advanced Statistical Analysis

- Analysis of Variance (ANOVA)
- Statistical Modeling (Regression Analysis)



Materials Included:

- Comprehensive Lecture Notes
- Practice Datasets and Problem Sets
- Software Tutorials (R/Python/Excel)
- Recorded Sessions and Supplementary Videos



Course Duration:

- 8 weeks — Two sessions per week.



Level:

- **Intermediate** (Basic knowledge of algebra and introductory probability is recommended).

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