**The Hong Kong University of Science and Technology**

**IEDA4000G Python for Analytics**

[Course Title] Python for Analytics

[Course Code] IEDA4000G

[No. of Credits] 3

[Any pre-/co-requisites] None

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**Course Description**

This course equips students with Python programming skills for data analytics in engineering and business contexts, focusing on foundational techniques for data manipulation, visualization, and statistical analysis. Students will learn to process and analyze data using Python libraries such as NumPy, matplotlib, seaborn, bokeh, and GraphViz, with an emphasis on creating insightful visualizations and handling raw datasets. The course covers data wrangling without relying on pandas, basic statistical methods, and workflow automation. Hands-on projects with real-world datasets will enable students to build practical skills for data-driven decision-making, complementing database and advanced analytics courses.

**Assessments:**

| Assessment Task | Contribution to Overall Course grade (%) |
|---|---|
| Homework | 35% |
| Midterm | 20% |
| Project Proposal | 10% |
| Project Progress Report | 15% |
| Final Report + Presentation | 20% |

**Required Texts and Materials**

[1] McKinney, Wes. Python for Data Analysis, 3E, 2022.

[2] Bynum, Michael L., et al. Pyomo-Optimization Modeling in Python. Vol. 67. No. s 32. Berlin/Heidelberg, Germany: Springer, 2021.