# Teaching Plan

**ENG1003 Freshman Seminar for Engineering - Freshman Project**

**Design of Path Planning Algorithm for Aircraft Operation**

**(Online Teaching)**

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| **Sem. Week** | **Topics Taught** | **Planned Learning Outcomes** | **Assessment** | **Timetable, Venue**  **Staff** |
| Wk 3  (Sep 17) | * Introduction to GitHub and how it can help in your study. * Instruction on the installation of *Python* and the *Visual Studio Code* (a popular compiler of *Python* in Windows 10) * Instruction on the installation of *GitHub* and the collaborative function in online platform [*GitHub*](https://github.com/) website and *Visual Studio Code*. | * Understand the principle and applications of path-planning * Global outlook * Basic code programming * Project management * Work collaboration |  | LEC/TUT: Friday 10:30-13:20, MS Team  Li-Ta HSU  Weisong WEN |
| Wk 4  (Sep 24) | * Introduction to the importance of path planning in aviation and aerospace industries. * Introduction to A\* path planning algorithm. * Introduction to the open-source code, [*Python Robotics*](https://github.com/AtsushiSakai/PythonRobotics), with path planning capability. * Project management and collaboration * Discussing the use of $200 HKD budget to design and develop the path planning algorithm | * Project management * Hands-on coding experience * Work collaboration * Problem-solving skills * Learning to learn skills | Familiarization with GitHub and Python | LEC/TUT: Friday 10:30-13:20, MS Team  Li-Ta HSU  Weisong WEN |
| Wk 5  (Oct 1) | Public Holiday | | | |
| Wk 6  (Oct 8) | * Design the path planning algorithm considering different factors, distance, safety and economic cost. * Idea on how to determine the factors in each location. (to extend the relationship of the study path in AE programme) | * Hands-on coding experience * Work collaboration * Problem-solving skills * Learning to learn skills * Creativity in engineering solution |  | LEC/TUT: Friday 10:30-13:20, MS Team  Li-Ta HSU  Weisong WEN |
| Wk 7  (Oct 15) | * Each group must finish their path planning algorithm before the end of next week. * Introduction on the preparation of the manual of the code designed and developed by students | * Hands-on coding experience * Work collaboration * Problem-solving skills * Learning to learn skills * Creativity in engineering solution |  | LEC/TUT: Friday 10:30-13:20, MS Team  Li-Ta HSU  Weisong WEN |
| Wk 8  (Oct 22) | * Make a 10-minute video presentation (upload to GitHub). * Discussion and outlook of the path planning for aviation and aerospace industries. | * Project management * Problem-solving skills * Technical Report and video presentation (every student shall present) * Global Outlook | * Video Presentation (upload to GitHub) * Report includes code manual and reflective essay (GitHub main page in Readme.md format) * Confidential peer evaluation (Send to [lt.hsu@polyu.edu.hk](mailto:lt.hsu@polyu.edu.hk)) | LEC/TUT: Friday 10:30-13:20, MS Team  Li-Ta HSU  Weisong WEN |