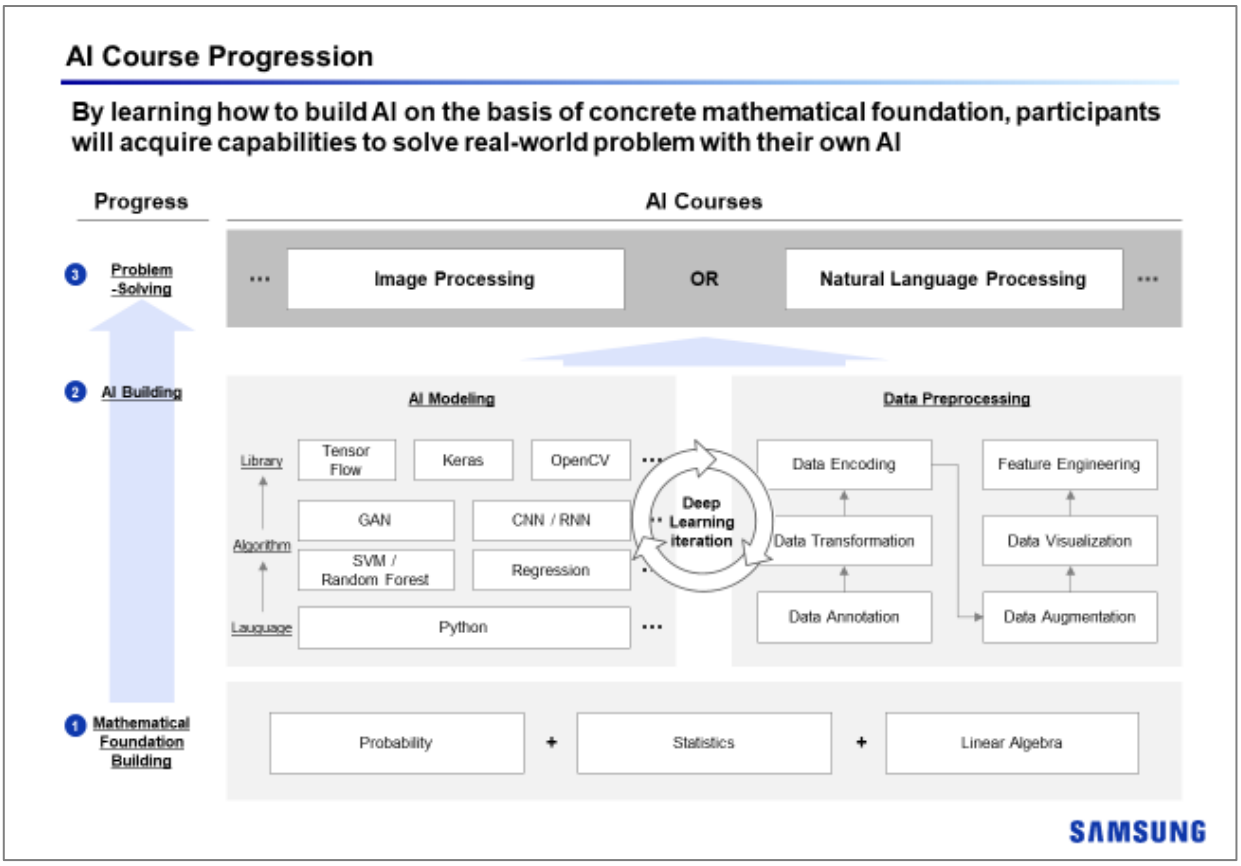
Course Details

Topic	AI (Artificial Intelligence) Course
Course Schedule	▪ E-learning: 3 months (total 240 hours) - Lecture & Exercise: 2 months (160 hours) - Capstone Project: 1 month (80 hours)
Learning Environment	▪ PC - Minimum: Windows 8 + CPU i5 + RAM 8GB - Recommended: Windows 10 + CPU i7-8700 3.19 GHz + RAM 16GB + NVidia GPU 1660 Ti
Learning Objectives	▪ Understand the basic concept of Probability, Statistics, and Linear Algebra that is fundamental to learn how to build AI. ▪ Understand the basic concept of Python and use Python to complete real-world coding exercises. ▪ Be able to implement AI (Machine Learning + Deep Learning) with related packages and learn its application to solve real-world problems. ▪ Understand the landscape of data science tools and their applications, and will be prepared to identify and dig into new technologies and algorithms. ▪ Have a fluid understanding of, and practical experience with, the process of designing, implementing, and communicating the results of an AI project.
Course Prerequisites	▪ Coding Experience - Prior experiences in learning one of Object-oriented Language (e.g. Java, JavaScript, C++, etc.) - A basic level understanding of grammar in Object-oriented Language ▪ Basic Statistics - Understanding of probability and statistics fundamentals - A proper document certifies candidate's completion of relevant courses should be presented when a candidate submits an application form
Audience & Characteristics	▪ Target - Youth interested in pursuing a career in AI, who need the appropriate education for their career. ▪ Characteristics - Educational background: successfully completed high school level STEM courses or higher education. - Level for understanding: possess basic knowledge in programming and statistics. - Expectations: expects to obtain necessary knowledge and skills for entry-level job placement in AI field.

Course Information



▶ **Lecture and Exercise**

Course Contents
Chapter 1. Introduction to Artificial Intelligence
- Unit 1. The Concept of Artificial Intelligence
- Unit 2. Applications of Artificial Intelligence
- Unit 3. Trends in Artificial Intelligence
- Unit 4. Course Roadmap
Chapter 2. Python Programming
- Unit 1. Python I
- Unit 2. Python II
- Unit 3. Python III
- Unit 4. Python IV
- Unit 5. Python V
- Quiz
Chapter 3. Python Libraries

- Unit 1. NumPy Package
- Unit 2. Pandas Package
- Unit 3. Visualization
- Quiz
Chapter 4. Probability and Statistics
- Unit 1. Understanding of Probability
- Unit 2. Understanding of Statistics I
- Unit 3. Understanding of Statistics II
- Unit 4. Statistical Hypothesis Testing
- Quiz
Chapter 5. Machine Learning – Part I
- Unit 1. Data Preprocessing
- Unit 2. Unsupervised Learning
- Unit 3. Regression
- Quiz
Chapter 6. Machine Learning – Part II
- Unit 4. Classification Prediction (Basic)
- Unit 5. Classification Prediction (Advanced)
- Quiz
Chapter 7. Machine Learning – Part III
- Unit 6. Natural Language Processing
- Unit 7. Image Processing
- Quiz
Chapter 8. Deep Learning – Part I
- Unit 1. Introduction to Deep Learning
- Unit 2. Deep Learning Various Topics
- Quiz
Chapter 9. Deep Learning – Part II
- Unit 3. Deep Learning with Keras
- Quiz

▶ **Capstone Project**

Course Contents
Chapter 10. Starting an AI Project
- Project Preparation
- Design Thinking
Chapter 11. AI Capstone Project Tutorial
- Using a Ready-Made CNN Model
- AI Application Cases
※ During the capstone project, student's project activities take more time than lecture itself. Please expect up to 80 hours to complete the whole project.