



Lecture #0

Competency Overview and Assessment

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CMKL University

Welcome to **SEC-101: Data and Information Fundamentals**

Let me introduce myself first 😊



Want to Connect?

This is my LinkedIn and Personal Website.

- My name is **Charnon Pattiyanon, Ph.D.** and my students called me Ajarn Top or Ajarn Charnon.
- If you would like to contact me, feel free to email me at charnon@cmkl.ac.th or schedule a meeting at my office (**706, 7th floor**).
- I currently serve as the Assistant Director of IT and an Instructor in **Cybersecurity** at CMKL University.
- I started my academic journey with a *Bachelor of Engineering (B.Eng.)* in **Computer Engineering (International Program)** at **KMUTT**.
- I began my career as a web developer at a software house in Thailand.

Let me introduce myself first 😊

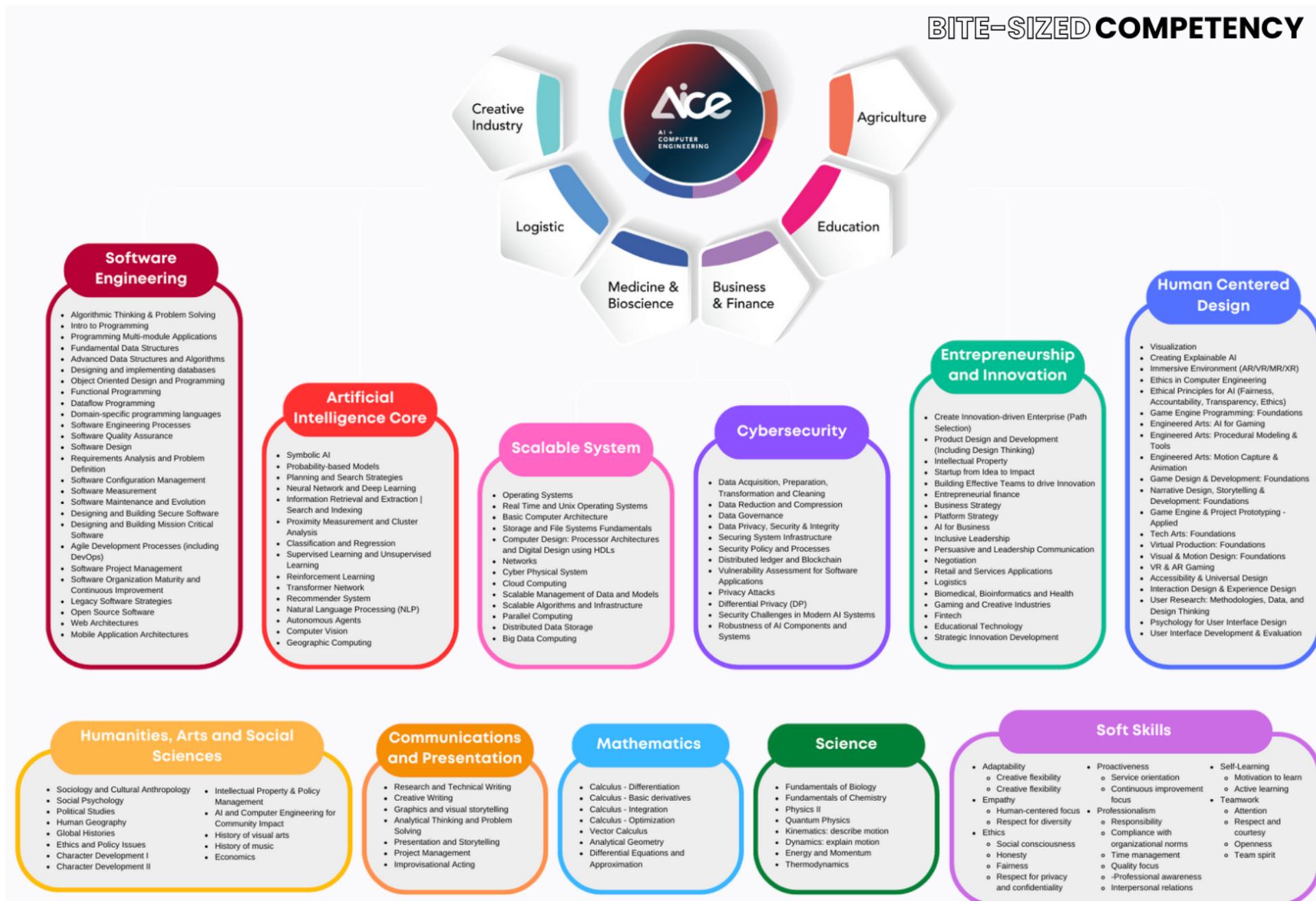


Want to Connect?

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- After working for a few years, I realized that I was capable of more than just day-to-day development work. I decided to pursue *a Master of Science (M.Sc.) in Software Engineering* at **Chulalongkorn University**.
- After graduating, I joined G-ABLE Co., Ltd. in the **Security Solutions** Department, where I realized that working as **a white-hat security engineer** was the right path for me.
- I chose to challenge myself by pursuing *a doctor of Philosophy (Ph.D.) in Information Science* at Japan Advanced Institute of Science and Technology or **JAIST** in Ishikawa, Japan, where I conducted extensive research in the fields of information security and privacy.

BITE-SIZED COMPETENCY



Competency Information

- **Competency Code:** SEC-101
- **Competency Title:** Data and Information Fundamentals
- **Competency Credit:** **2** (= **26 Hours** of work throughout an entire semester)
- **Class Timetable:**
 - **Lecture:** Every Monday, from 14:00 – 15:00 @ Room 603, CMKL University
 - **Lab/Practical Session:** Every Monday, from 15:00 – 16:00 @ Room 603, CMKL University
 - **Office Hours:** Every Tuesday, from 09:00 – 10:00 @ Office 706, CMKL University
- **Class Material and Channels:**
 - Lecture Material: <https://cmkl.instructure.com/courses/800/modules>
 - Lab Instruction and Submission: <https://cmkl.instructure.com/courses/800/assignments>
 - Assessment Submission: <https://cmkl.instructure.com/courses/800/assignments>
 - Announcement: <https://cmkl.instructure.com/courses/800/announcements>
 - Discussion and Communication: https://cmkl.instructure.com/courses/800/discussion_topics



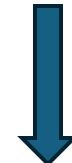
Data and Information Fundamentals



Data Representation and Characteristics



You will learn the **core definitions of data and information**, including their **types, characteristics, and levels of sensitivity**.



Data Science



You will learn about **the data science process**, which includes the following key stages:

- (1) Understanding the business problem
- (2) Data acquisition
- (3) Data preparation
- (4) Exploratory data analysis (EDA)
- (5) Data modeling
- (6) Data visualization and communication
- (7) Deployment and maintenance

In addition, we will explore various **data acquisition techniques** in greater depth.

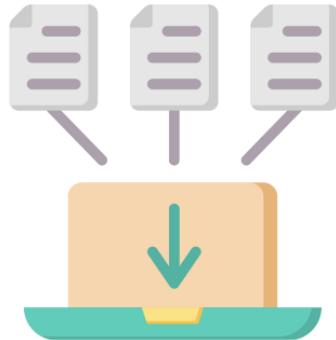


Data Cleansing



You will learn **how to clean your acquired data**, transforming it from dirty to clean. This includes learning **techniques and tools** in the **Python programming language** to efficiently and programmatically clean your dataset.

Skills and Assessment



Data Acquisition



Data Preparation



Data Transformation



Data Cleansing

- **SEC-101:00010** – Evaluate the relation of data acquisition, preparation, transformation and cleansing.
 - **SEC-101:00020** – Design a proper process of data acquisition, preparation, transformation, and cleansing
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- **Assessment Report:**
 - You are required to write an analysis report defining the data acquisition and pre-processing methods for preparing a dataset of an AI system.

Competency Schedule

Week	Date	Lecture Topic	Lab Topic
1	18 August 2025	Lecture 0: Competency Overview and Assessment Lecture 1: An Overview of Data and Information	Lab 1: Identifying Data Types and Their Sensitivity Assessment Announcement
2	25 August 2025	Lecture 2: Data Cleaning and Preprocessing Workflow	Lab 2: Defining Data Science and Acquisition Method for a Given Scenarios.
3	1 September 2025		Lab 3: Clean the Dataset with Python
	3 October 2025	1st Deadline for Assessment Submission (You will be able to re-submit for the 2nd deadline)	
	28 November 2025	2nd Deadline for Assessment Submission	

Class Discipline



**Discussion and Engagement
are highly expected**



**Please do not disturb others
with noisy chit chat**



Please focus on the study



**The more you tried, the more you gain.
Please do not copy others' work**



**Be on time. You must not
miss any funny stuff**

Academic Integrity

- “In any manner of *presentation*, it is the responsibility of each student to **produce her/his own original academic work**.”
- “In all academic work to be graded, **the citation of all sources is required**. When collaboration or assistance is permitted by the course instructor(s) [...], the *acknowledgement* of *any collaboration or assistance* is likewise required. This citation and acknowledgement must be incorporated into the work submitted and not separately or at a later point in time.”
- “**Cheating** occurs when a student avails her/himself of an unfair or disallowed advantage [...]"
- “**Plagiarism** is defined as **the use of work or concepts contributed by other individuals without proper attribution or citation**. Unique ideas or materials taken from another source for either written or oral use must be fully acknowledged in academic work to be graded.”



End of the Lecture

Please don't hesitate to raise your hand and ask questions if you're curious about anything!