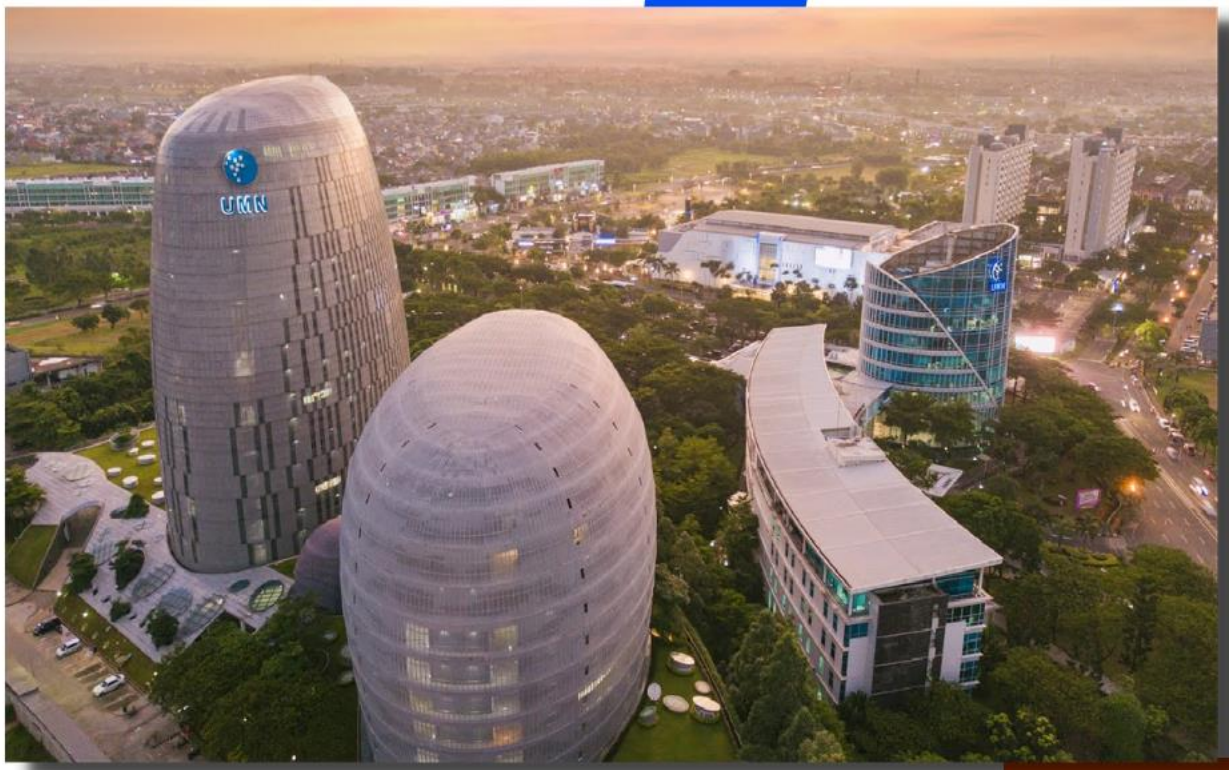
Materials & Training System

KSU_4IRTC Program
Batch 3



Dr. Eng. Niki Prastomo
Dean, Faculty of Engineering & Informatics
Universitas Multimedia Nusantara

Course Track

Smart Factory

This track focus on smart factory development trend. Analyzing factor and technologies used in smart factory.

Cloud-Big Data

This track focus on the usage of cloud in industry 4.0 and using several data analytic methods in order to build smart system.

Smart Factory

- Smart factory data track consists of 8 individual courses
- Each course were taken in 7 weeks of synchronous class

Understanding Korean Smart Factory

Smart Factory: Concept, Design, and Applied System

CAD and Tolerance

PLC Theory & Programming

Mechatronics Foundation & Deepening

Embedded System

Prospect of Future Automotive Technology

Capstone Project

Smart Factory

No	Module	Objective(s)
1	Understanding Korean Smart Factory	Participants will be able to explain about smart factory model adopted by Korean Factory
2	Smart Factory: Concept, Design, and Applied System	Participants will be able to explain concept and design how smart factory built; Participants will be able to developed and also design various improvement strategies and analyzing key factor on smart factory improvement.
3	CAD and Tolerance	Participants will be able to use several tools and feature in the AutoCAD to build simple model used in industry
4	PLC Theory & Programming	Participants will be able to create PLC program from scratch by means of simulation or real hardware
5	Mechatronics Foundation & Deepening	Participants will be able to design simple mechatronic system with correct component selection
6	Embedded System	Participants will be able to understand and design embedded systems for specific applications both hardware and software in detail, according to system requirements.
7	Prospect of Future Automotive Technology	Participants will be able to explain the road map of automotive technology and prospect for future
8	Capstone Project	Participants will be able to design and develop a system that applies technological developments in the fields of sensors, control, cloud network, and data visualization.

Cloud - Big Data

- Smart factory data track consists of 8 individual courses
- Each course were taken in 7 weeks of synchronous class

Understanding Industry 4.0

Cloud Networking

Cloud Computing: Microsoft Azure

Cloud Computing: Amazon AWS

Big Data Visualization

Big Data Analysis with Python and R

Web Programming

Capstone Project

Cloud - Big Data

No	Module	Objective(s)
1	Understanding Industry 4.0	Participants will be able to explain the definition, impact, and technoloy development of 4th industrial revolution
2	Cloud Networking	Participants will be able to design simple cloud network architecture by means correct component selection and connection configuration
3	Cloud Computing: Microsoft Azure	Participants will be able to configure azure cloud infrastructure by using it services and deploy web application into it
4	Cloud Computing: Amazon AWS	Participants will be able to build best practice AWS architecture by using server based and serverless based services
5	Big Data Visualization	Participants will be able to visualize data to communicate information clearly and efficiently to users through selected information graphs, such as tables and graphs
6	Big Data Analysis with Python and R	Participants will be able to perform simple data analysis by using Python programming and R language.
7	Web Programming	Participants will be able to understand Web technology, master Web programming, and have the ability to design and build a website that is connected to a database.
8	Capstone Project	Participants will be able to design and develop a system that applies technological developments in the fields of sensors, control, cloud network, and data visualization.

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Smart Factory

Cloud-Big Data

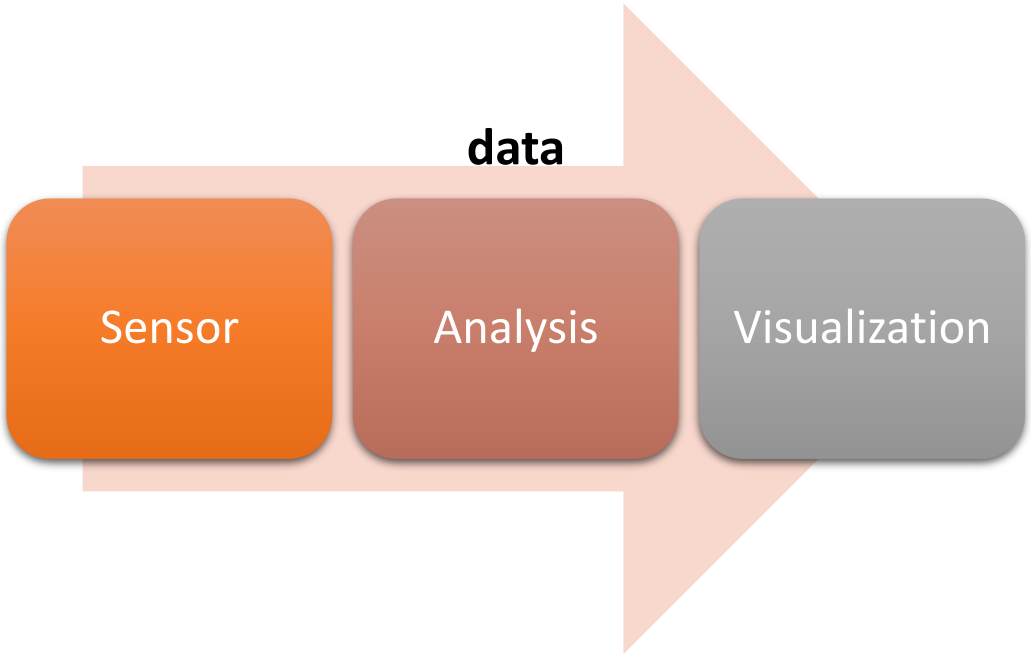
Session	Schedule				
	Mon	Tue	Wed	Thu	Fri
Morning Session I: 09.00 - 10.15 Break: 10.15 - 10.30 Session II: 10.30 - 11.45	**Embedded Systems** Instructor: Mr. Megantara	**PLC Theory & Programming** Instructor: Mr. Bima	**CAD and Tolerance** Instructor: Mr. Syahril	**Mechatronics Foundation/ Deepening** Instructor: Mr. Bima & Mr. Megantara	**Capstone Design**
Afternoon Session I: 13.00 - 14.15 Break: 14.15 - 14.30 Session II: 14.30 - 15.45	**Prospects of Future Automotive Technology** Instructor: Mr. Syahril	**Understanding Korean Smart Factory Technology Applications** Instructor: Dr. Niki	**Understanding KOICA's International Development Understanding Promotion Project** Instructor: Silla Univ	**Smart Factory: Concept, Design, and Applied System** Instructor: Dr. Rangga & Dr. Marojahan	**Capstone Design**
Morning Session I: 09.00 - 10.15 Break: 10.15 - 10.30 Session II: 10.30 - 11.45	**Big Data Visualization** Instructor: Mr. Raymond	**Cloud Network** Instructor: Mr. Samuel	**Cloud Computing (Azure)** Instructor: Mr. Dareen	**Web Programming** Instructor: Mrs. Monika & Mr. Budi	**Capstone Design**
Afternoon Session I: 13.00 - 14.15 Break: 14.15 - 14.30 Session II: 14.30 - 15.45	**Big Data Analysis Using Python and R** Instructor: Mrs. Alethea	**Cloud Computing (AWS)** Instructor: Mr. Amin & Mr. Kevin	**Understanding KOICA's International Development Understanding Promotion Project** Instructor: Silla Univ	**Understanding the 4IR** Instructor: Mr. Samuel Ady & Mr. Rudi	**Capstone Design**

Capstone Design

Prototype of 4M+1E (Man, Machinery, Material, Method, Environment)
Data Digitization System;
Case Study of PK Ojong Jakob Oetama Tower, UMN.

Participants are required to:

- Design and develop a system that applies technological developments in the fields of sensors, control, cloud network, and data visualization.
- Work in groups of 2 or 3 (required that each group consists of members of both tracks)
- Present the functionality of the prototype on 28th October 2022 (15 min each) using Power Point
- Submit Extended Abstract (2 pages, pdf) on 28th October 2022
  - Introduction (Project Background and Objectives)
  - Methodology
  - Results and Discussion
  - Conclusions and Recommendations
  - References



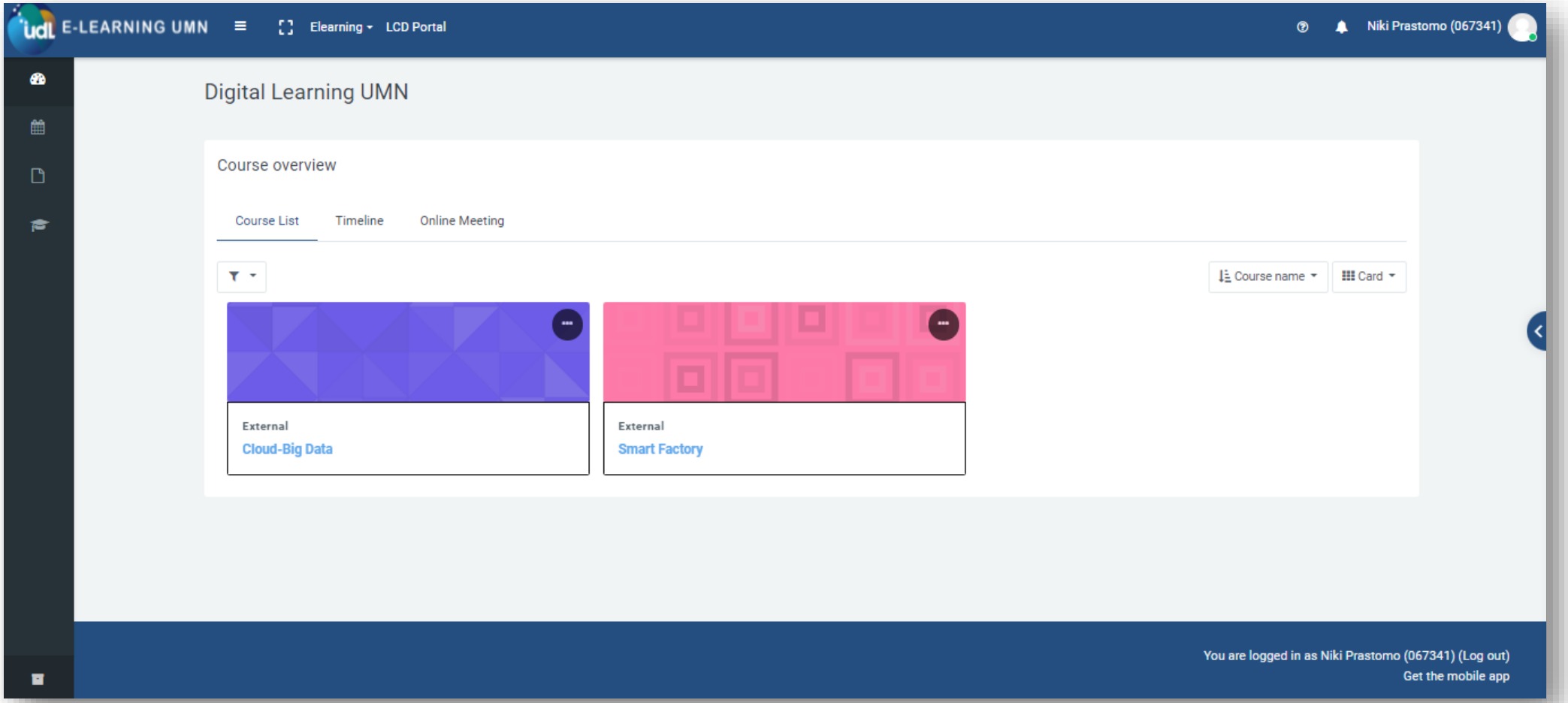
Capstone Design

Prototype of 4M+1E (Man, Machinery, Material, Method, Environment)
Data Digitization System;
Case Study of PK Ojong Jakob Oetama Tower, UMN.

Additional Info:

- Visualized data needs to be analyzed first, not just numbers. Visualization aims for supporting conclusion/decision making.
- The implementation of the Capstone Project is an independent project.
- Supervision/guidance can be done with the instructors during the training class.
- The time dedicated specifically to Capstone Design is every Friday (9.00 - 17.00)
- Participants can utilize the lab facilities and kits at KSU_4IRTC

https://elearning.umn.ac.id/udl/login/index.php



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Thank you

Quality is not an act, it is a habit.

- Aristotle